Unit 3
Subtraction

Topic A: Subtraction

Subtraction takes an amount **away** from another amount. The result of subtraction is called the **difference.**

The **minus sign** — means to subtract.

$$\diamond \diamond \diamond \diamond \diamond \diamond \lozenge \lozenge \lozenge = \diamond \diamond \diamond \diamond \diamond \diamond$$
$$9 \quad - \quad 3 \quad = \quad 6$$

This says nine minus three equals six **or** nine take away three is six.

The **difference** between 9 and 3 is 6.

Subtraction is the opposite of addition. Look at the examples:

$$5 + 4 = 9 \qquad 9 - 4 = 5$$
$$4 + 5 = 9 \qquad 9 - 5 = 4$$

$$\begin{array}{r} 8 \\ + 3 \\ \hline 11 \end{array} \qquad \begin{array}{r} 11 \\ - 3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 3 \\ + 8 \\ \hline 11 \end{array} \qquad \begin{array}{r} 11 \\ - 8 \\ \hline 3 \end{array}$$

Subtraction facts are a tool that you use to do subtraction questions.

Exercise One

Check out your **subtraction facts** by doing this exercise as quickly as you can. Use your addition facts to help find the subtraction facts. Check your work using the answer key at the end of the exercise. Then, make a list of any subtraction facts you do not know or are tricky for you - practice them.

a)
$$\begin{array}{r} 5 \\ - 2 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9 \\ - 1 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 12 \\ - 4 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 4 \\ - 2 \\ \hline \end{array}$$

e)   17
         $- 9$

f)   2
      $- 1$

g)   11
      $- 9$

h)   7
      $- 7$

i)   14
         $- 6$

j)   16
     $- 9$

k)   9
      $- 3$

l)   8
     $- 1$

m)   9
        $- 0$

n)   14
    $- 8$

o)   10
     $- 5$

p)   15
    $- 8$

q)   12
        $- 9$

r)   13
     $- 5$

s)   6
      $- 5$

t)   5
      $- 0$

u)   13
        $- 9$

v)   8
     $- 4$

w)   10
    $- 0$

x)   7
     $- 3$

y)   11
        $- 8$

z)   9
     $- 9$

aa)   6
     $- 1$

bb)   4
     $- 4$

cc)   13
       $- 7$

dd) 3
     $- 2$

ee)   11
     $- 4$

ff)   5
     $- 4$

gg)   11
     − 6

hh)   9
     − 5

ii)   6
     − 2

jj)   3
     − 3

kk)   4
     − 1

ll)   7
     − 6

mm)   10
     − 4

nn)   12
     − 7

oo)   15
     − 6

pp)   10
     − 8

qq)   9
     − 7

rr)   8
     − 8

Answers to Exercise One

a) 3	b) 8	c) 8	d) 2	e) 8	f) 1	g) 2
h) 0	i) 8	j) 7	k) 6	l) 7	m) 9	n) 6
o) 5	p) 7	q) 3	r) 8	s) 1	t) 5	u) 4
v) 4	w) 10	x) 4	y) 3	z) 0	aa) 5	bb) 0
cc) 6	dd) 1	ee) 7	ff) 1	gg) 5	hh) 4	ii) 4
jj) 0	kk) 3	ll) 1	mm) 6	nn) 5	oo) 9	pp) 2
qq) 2	rr) 0					

Note: There is no self-test for this topic.

Topic B: Subtraction of Larger Numbers

You can find the difference between two large numbers using the subtraction facts you have been practicing. Always **take away** or subtract the **number after the minus sign.**

Use these steps to complete each subtraction question.

> **Step 1**: Subtract the ones from the ones.

> **Step 2**: Subtract the tens from the tens.

> **Step 3**: Subtract the hundreds from the hundreds.

> **Step 4**: Subtract the thousands from the thousands.

> **Step 5**: Subtract the ten thousands from the ten thousands and so on.

> **Example A:**
> $$\begin{array}{r} 57 \\ -\ 26 \\ \hline \end{array} \qquad \begin{array}{r} 57 \\ -\ 26 \\ \hline 1 \end{array} \qquad \begin{array}{r} 57 \\ -\ 26 \\ \hline 31 \end{array}$$

Step 1: Subtract the ones from the ones. 7 ones – 6 ones = 1 one
Write the answer in line with the ones in the question.

Step 2: Subtract the tens from the tens. 5 tens – 2 tens = 3 tens

The **difference** between 57 and 26 is **31**.

Exercise One

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 36 \\ -\ 13 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 72 \\ -\ 42 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 48 \\ -\ 22 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 55 \\ -\ 31 \\ \hline \end{array}$$

e) $\begin{array}{r} 93 \\ -40 \\ \hline \end{array}$ f) $\begin{array}{r} 76 \\ -71 \\ \hline \end{array}$ g) $\begin{array}{r} 95 \\ -62 \\ \hline \end{array}$ h) $\begin{array}{r} 39 \\ -26 \\ \hline \end{array}$

i) $\begin{array}{r} 64 \\ -21 \\ \hline \end{array}$ j) $\begin{array}{r} 85 \\ -64 \\ \hline \end{array}$ k) $\begin{array}{r} 98 \\ -73 \\ \hline \end{array}$ l) $\begin{array}{r} 76 \\ -64 \\ \hline \end{array}$

m) $\begin{array}{r} 86 \\ -50 \\ \hline \end{array}$ n) $\begin{array}{r} 95 \\ -35 \\ \hline \end{array}$ o) $\begin{array}{r} 28 \\ -17 \\ \hline \end{array}$ p) $\begin{array}{r} 69 \\ -52 \\ \hline \end{array}$

q) $\begin{array}{r} 84 \\ -40 \\ \hline \end{array}$ r) $\begin{array}{r} 74 \\ -53 \\ \hline \end{array}$ s) $\begin{array}{r} 97 \\ -83 \\ \hline \end{array}$ t) $\begin{array}{r} 89 \\ -80 \\ \hline \end{array}$

u) $\begin{array}{r} 79 \\ -29 \\ \hline \end{array}$ v) $\begin{array}{r} 89 \\ -80 \\ \hline \end{array}$ w) $\begin{array}{r} 67 \\ -61 \\ \hline \end{array}$ x) $\begin{array}{r} 48 \\ -40 \\ \hline \end{array}$

Answers to Exercise One

a) 23	b) 30	c) 26	d) 24	e) 53	f) 5	g) 33
h) 13	i) 43	j) 21	k) 25	l) 12	m) 36	n) 60
o) 11	p) 17	q) 44	r) 21	s) 14	t) 9	u) 50
v) 9	w) 6	x) 8				

Checking Subtraction

You can check your subtraction. Add the **<u>answer</u>** (the **difference**) to the number you took away (the second number). If your subtracting was correct, the result of the adding will be the number you started with (the top number) in the subtraction question.

Example A:

$$
\begin{array}{r}
928 \\
-416 \\
\hline
512
\end{array}
$$
  difference

To check, add 512 to 416.

$$
\begin{array}{r}
512 \\
+416 \\
\hline
928
\end{array}
$$
  ✓

Exercise Two

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise**.**

a)
$$
\begin{array}{r}
87 \\
-36 \\
\hline
\end{array}
$$

b)
$$
\begin{array}{r}
29 \\
-21 \\
\hline
\end{array}
$$

c)
$$
\begin{array}{r}
48 \\
-40 \\
\hline
\end{array}
$$

d)
$$
\begin{array}{r}
99 \\
-63 \\
\hline
\end{array}
$$

e)
$$
\begin{array}{r}
75 \\
-45 \\
\hline
\end{array}
$$

f)
$$
\begin{array}{r}
73 \\
-20 \\
\hline
\end{array}
$$

g)
$$
\begin{array}{r}
92 \\
-21 \\
\hline
\end{array}
$$

h)
$$
\begin{array}{r}
58 \\
-27 \\
\hline
\end{array}
$$

i)
$$
\begin{array}{r}
84 \\
-23 \\
\hline
\end{array}
$$

j)
$$
\begin{array}{r}
69 \\
-38 \\
\hline
\end{array}
$$

k)
$$
\begin{array}{r}
45 \\
-23 \\
\hline
\end{array}
$$

l)
$$
\begin{array}{r}
49 \\
-19 \\
\hline
\end{array}
$$

m)
$$
\begin{array}{r}
59 \\
-14 \\
\hline
\end{array}
$$

n)
$$
\begin{array}{r}
87 \\
-63 \\
\hline
\end{array}
$$

o)
$$
\begin{array}{r}
88 \\
-15 \\
\hline
\end{array}
$$

p)
$$
\begin{array}{r}
56 \\
-44 \\
\hline
\end{array}
$$

q) $\begin{array}{r} 96 \\ -\ 75 \\ \hline \end{array}$
r) $\begin{array}{r} 37 \\ -\ 17 \\ \hline \end{array}$
s) $\begin{array}{r} 70 \\ -\ 50 \\ \hline \end{array}$
t) $\begin{array}{r} 38 \\ -\ 24 \\ \hline \end{array}$

u) $\begin{array}{r} 31 \\ -\ 10 \\ \hline \end{array}$
v) $\begin{array}{r} 27 \\ -\ 12 \\ \hline \end{array}$
w) $\begin{array}{r} 74 \\ -\ 53 \\ \hline \end{array}$
x) $\begin{array}{r} 45 \\ -\ 20 \\ \hline \end{array}$

Answers to Exercise Two

a) 51	b) 8	c) 8	d) 36	e) 30	f) 53	g) 71
h) 31	i) 61	j) 31	k) 22	l) 30	m) 45	n) 24
o) 73	p) 12	q) 21	r) 20	s) 20	t) 14	u) 21
v) 15	w) 21	x) 25				

Exercise Three

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise.

a) $\begin{array}{r} 46 \\ -\ 23 \\ \hline \end{array}$
b) $\begin{array}{r} 65 \\ -\ 42 \\ \hline \end{array}$
c) $\begin{array}{r} 45 \\ -\ 13 \\ \hline \end{array}$
d) $\begin{array}{r} 53 \\ -\ 20 \\ \hline \end{array}$

e) $\begin{array}{r} 34 \\ -\ 21 \\ \hline \end{array}$
f) $\begin{array}{r} 48 \\ -\ 32 \\ \hline \end{array}$
g) $\begin{array}{r} 56 \\ -\ 13 \\ \hline \end{array}$
h) $\begin{array}{r} 26 \\ -\ 15 \\ \hline \end{array}$

i) $\begin{array}{r} 49 \\ -\ 22 \\ \hline \end{array}$
j) $\begin{array}{r} 58 \\ -\ 27 \\ \hline \end{array}$
k) $\begin{array}{r} 95 \\ -\ 71 \\ \hline \end{array}$
l) $\begin{array}{r} 37 \\ -\ 14 \\ \hline \end{array}$

m) 69
   − 19

n) 86
   − 71

o) 99
   − 50

p) 89
   − 55

q) 97
   − 13

r) 87
   − 25

s) 48
   − 26

t) 36
   − 11

u) 46
   − 12

v) 86
   − 43

w) 59
   − 32

x) 84
   − 14

Answers to Exercise Three

a) 23   b) 23   c) 32   d) 33   e) 13   f) 16   g) 43
h) 11   i) 27   j) 31   k) 24   l) 23   m) 50   n) 15
o) 49   p) 34   q) 84   r) 62   s) 22   t) 25   u) 34
v) 43   w) 27   x) 70

Exercise Four

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise.

a) 23
   − 11

b) 53
   − 21

c) 32
   − 20

d) 77
   − 32

e) 31
   − 21

f) 38
   − 15

g) 33
   − 13

h) 92
   − 30

i)
$$94 - 23$$

j)
$$54 - 42$$

k)
$$74 - 33$$

l)
$$88 - 72$$

m)
$$46 - 36$$

n)
$$75 - 41$$

o)
$$85 - 12$$

p)
$$56 - 45$$

q)
$$64 - 22$$

r)
$$27 - 15$$

s)
$$76 - 53$$

t)
$$63 - 41$$

u)
$$52 - 41$$

v)
$$57 - 44$$

w)
$$69 - 46$$

x)
$$77 - 42$$

Answers to Exercise Four

a) 12   b) 32   c) 12   d) 45   e) 10   f) 23   g) 20
h) 62   i) 71   j) 12   k) 41   l) 16   m) 10   n) 34
o) 73   p) 11   q) 42   r) 12   s) 23   t) 22   u) 11
v) 13   w) 23   x) 35

Use these steps to complete each subtraction question:

Example B:
$$\begin{array}{r} 696 \\ -\ 251 \end{array}$$

Step 1: Subtract the ones from the ones. 6 ones − 1 one = 5 ones

$$\begin{array}{r} 696 \\ -\ 251 \\ \hline 5 \end{array}$$

Step 2: Subtract the tens from the tens. 9 tens − 5 tens - 4 tens

$$\begin{array}{r} 696 \\ -\ 251 \\ \hline 45 \end{array}$$

Step 3: Subtract the hundreds from the hundreds.
6 hundreds − 2 hundreds = 4 hundreds

$$\begin{array}{r} 696 \\ -\ 251 \\ \hline 445 \end{array}$$

The **difference** between 696 and 251 is **445**.

Exercise Five   Find the differences. Check your work using the answer key
at the end of the exercise**.**

a) $\begin{array}{r} 995 \\ -\ 452 \end{array}$ b) $\begin{array}{r} 877 \\ -\ 342 \end{array}$ c) $\begin{array}{r} 788 \\ -\ 615 \end{array}$ d) $\begin{array}{r} 987 \\ -\ 243 \end{array}$

e)
$$\begin{array}{r} 549 \\ -\,131 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 806 \\ -\,204 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 953 \\ -\,603 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 569 \\ -\,403 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 874 \\ -\,650 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 269 \\ -\,159 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 485 \\ -\,203 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 381 \\ -\,270 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 796 \\ -\,172 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 864 \\ -\,531 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 963 \\ -\,810 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 957 \\ -\,342 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 837 \\ -\,410 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 528 \\ -\,208 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 549 \\ -\,120 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 627 \\ -\,523 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 849 \\ -\,246 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 175 \\ -\,163 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 937 \\ -\,224 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 875 \\ -\,252 \\ \hline \end{array}$$

Answers to Exercise Five

a) 543 b) 535 c) 173 d) 744 e) 418 f) 602 g) 350
h) 166 i) 224 j) 110 k) 282 l) 111 m) 624 n) 333
o) 153 p) 615 q) 427 r) 320 s) 429 t) 104 u) 603
v) 12 w) 713 x) 623

Exercise Six

Find the differences. Check your work using the answer key at the end of the exercise.

a) $\begin{array}{r} 476 \\ -413 \\ \hline \end{array}$

b) $\begin{array}{r} 873 \\ -560 \\ \hline \end{array}$

c) $\begin{array}{r} 589 \\ -384 \\ \hline \end{array}$

d) $\begin{array}{r} 793 \\ -170 \\ \hline \end{array}$

e) $\begin{array}{r} 228 \\ -123 \\ \hline \end{array}$

f) $\begin{array}{r} 995 \\ -452 \\ \hline \end{array}$

g) $\begin{array}{r} 896 \\ -450 \\ \hline \end{array}$

h) $\begin{array}{r} 769 \\ -405 \\ \hline \end{array}$

i) $\begin{array}{r} 788 \\ -435 \\ \hline \end{array}$

j) $\begin{array}{r} 579 \\ -234 \\ \hline \end{array}$

k) $\begin{array}{r} 958 \\ -403 \\ \hline \end{array}$

l) $\begin{array}{r} 696 \\ -251 \\ \hline \end{array}$

m) $\begin{array}{r} 657 \\ -234 \\ \hline \end{array}$

n) $\begin{array}{r} 745 \\ -412 \\ \hline \end{array}$

o) $\begin{array}{r} 967 \\ -143 \\ \hline \end{array}$

p) $\begin{array}{r} 456 \\ -214 \\ \hline \end{array}$

q) $\begin{array}{r} 627 \\ -512 \\ \hline \end{array}$

r) $\begin{array}{r} 878 \\ -425 \\ \hline \end{array}$

s)   357   t)   725   u)   678
     − 130   − 214   − 623

v)   526   w)   724   x)   429
     − 116   − 221   − 316

Exercise Seven

Find the differences. Check your work using the answer key at the end of the exercise.

a)   543   b)   752   c)   328
     − 132   − 150   − 115

d)   758   e)   587   f)   857
     − 341   − 425   − 143

g)   545
     − 302

h)   466
     − 115

i)   964
     − 231

j)   679
     − 424

k)   757
     − 136

l)   467
     − 132

m)   536
     − 325

n)   897
     − 287

o)   979
     − 465

p)   907
     − 605

q)   494
     − 146

r)   778
     − 635

s)   573
     − 232

t)   859
     − 734

u)   735
     − 420

v)   912
     − 811

w)   966
     − 732

x)   578
     − 343

Exercise Eight

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 353 \\ -142 \end{array}$$

b)
$$\begin{array}{r} 896 \\ -675 \end{array}$$

c)
$$\begin{array}{r} 786 \\ -325 \end{array}$$

d)
$$\begin{array}{r} 743 \\ -623 \end{array}$$

e)
$$\begin{array}{r} 548 \\ -336 \end{array}$$

f)
$$\begin{array}{r} 685 \\ -143 \end{array}$$

g)
$$\begin{array}{r} 393 \\ -241 \end{array}$$

h)
$$\begin{array}{r} 965 \\ -130 \end{array}$$

i)
$$\begin{array}{r} 478 \\ -352 \end{array}$$

j)
$$\begin{array}{r} 968 \\ -605 \end{array}$$

k)
$$\begin{array}{r} 435 \\ -234 \end{array}$$

l)
$$\begin{array}{r} 694 \\ -523 \end{array}$$

m)
$$\begin{array}{r} 576 \\ -314 \end{array}$$

n)
$$\begin{array}{r} 946 \\ -615 \end{array}$$

o)
$$\begin{array}{r} 664 \\ -532 \end{array}$$

p)   824
    − 513

q)   768
    − 633

r)   497
    − 335

s)   985
    − 843

t)   679
    − 436

u)   598
    − 365

v)   984
    − 672

w)   569
    − 238

x)   747
    − 636

Answers to Exercise Eight							
a) 211	b) 221	c) 461	d) 120	e) 212	f) 542	g) 152
h) 835	i) 126	j) 363	k) 201	l) 171	m) 262	n) 331
o) 132	p) 311	q) 135	r) 162	s) 142	t) 243	u) 233
v) 312	w) 331	x) 111				

Use these steps to complete each subtraction question:

Example B: 4 628
                                  - 2 604

Step 1: Subtract the ones from the ones. 8 ones – 4 ones = 4 ones

                                    4 628
                                  - 2 604
                                        4

Step 2:Subtract the tens from the tens. 2 tens – 0 tens = 2 tens

                                    4 628
                                  - 2 604
                                      24

Step 3:Subtract the hundreds from the hundreds.
        6 hundreds – 6 hundreds = 0 hundreds
        The **0** must be placed in the answer to hold the hundreds place.

                                    4 628
                                  - 2 604
                                      024

Step 4:Subtract the thousands from the thousands.
        4 thousands – 2 thousands = 2 thousands

                                    4 628
                                  - 2 604
                                    2 024

The **difference** between 4 628 and 2 604 is **2 024.**

Example C: 79 486
                                 $-$ 42 104

Step 1: Subtract the ones from the ones. 6 ones $-$ 4 ones $=$ 2 ones

                                 79 486
                                $-$ 42 104
                                        2

Step 2: Subtract the tens from the tens. 8 tens $-$ 0 tens $=$ 8 tens

                                 79 486
                                $-$ 42 104
                                       82

Step 3: Subtract the hundreds from the hundreds.
      4 hundreds $-$ 1 hundreds $=$ 3 hundreds

                                 79 486
                                $-$ 42 104
                                      382

Step 4: Subtract the thousands from the thousands.
      9 thousands $-$ 2 thousands $=$ 7 thousands

                                 79 486
                                $-$ 42 104
                                    7 382

Step 5: Subtract the ten thousands from the ten thousands.
      7 ten thousands $-$ 4 ten thousands $=$ 3 ten thousands

                                 79 486
                                $-$ 42 104
                                   37 782

The **difference** between 79 486 and 42 104 is **37 382.**

Exercise Nine   Find the differences. Check your work using the answer key at the end of the exercise.

a)   8 646
    −   542

b)   7 295
    −   231

c)   9 738
    −   215

d)   6 498
    −   253

e)   3 674
    − 2 503

f)   3 219
    − 2 116

g)   6 456
    − 5 234

h)   1 758
    − 1 431

i)   8 954
    − 2 151

j)   8 975
    − 4 732

k)   7 296
    − 5 081

l)   9 678
    − 4 316

m)   9 489
    − 2 079

n)   7 638
    − 6 218

o)   4 759
    − 1 136

p)   8 275
    − 4 073

q)   59 684
    − 2 123

r)   36 937
    − 4 334

s)   49 752
    − 1 242

t)   19 584
    − 4 213

u)   38 825
    − 10 623

v)   76 824
    − 32 714

w)   28 043
    − 6 000

x)   58 492
    − 43 451

y) 83 964   z)   46 786   aa)   68 549   bb) 59 378
   − 52 752   − 36 130   − 37 143   − 31 238

cc) 86 973   dd) 85 947   ee)   92 857   ff) 89 635
   − 21 050   − 42 620   − 41 141   − 37 215

Answers to Exercise Nine

a) 8 104   b)   7 064   c) 9 523   d) 6 245   e) 1 171   f) 1 103   g) 1 222

h) 327   i)   6 803   j) 4 243   k) 2 215   l) 5 362   m) 7 410   n) 1 420

o) 3 623   p) 4 202   q) 57 561   r) 32 603   s) 48 510   t) 15 371   u) 28 202

v) 44 110 w) 22 043   x) 15 041   y)   31 212   z) 10 656   aa) 31 406   bb) 28 140

cc) 65 923 dd) 43 327   ee) 51 716   ff) 52 420

If a subtraction question is written with the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, and so on. The **first** number is **always** the top number and the **second** number is always written **below** the first number.

Example A: 687 − 52 = _____

$$\begin{array}{r} 687 \\ -\ 52 \\ \hline 635 \end{array}$$

Example B: 9 756 − 420 = _____

$$\begin{array}{r} 9\ 756 \\ -\ 420 \\ \hline 9\ 336 \end{array}$$

Exercise Ten   Rewrite each question in columns and find the differences. Check your work using the answer key at the end of the exercise.

a) $43 - 21 =$ b) $84 - 30 =$

c) $975 - 21 =$ d) $779 - 54 =$

e) $695 - 173 =$ f) $863 - 701 =$

g) $965 - 152 =$ h) $849 - 212 =$

i) $8\ 759 - 156 =$ j) $5\ 973 - 832 =$

k)   4 986 − 514 =

l)   2 876 − 572 =

m)   8 739 − 8 223 =

n)   8 684 − 3 364 =

o)   6 917 − 1 714 =

p)   2 965 − 2 341 =

q)   85 374 − 2 312 =

r)   19 806 − 2 503 =

s)   48 739 − 3 616 =

t)   98 562 − 7 161 =

u)   79 486 − 51 342 =

v)   89 528 − 84 311 =

w) $79\,568 - 38\,052 =$ x) $83\,964 - 62\,504 =$

Answers to Exercise Ten

a) 22	b) 54	c) 954	d) 725	e) 522	f) 162	g) 813
h) 637	i) 8 603	j) 5 141	k) 4 472	l) 2 304	m) 516	n) 5 320
o) 5 203	p) 624	q) 83 062	r) 17 303	s) 45 123	t) 91 401	u) 28 144
v) 5 217	w) 41 516	x) 21 460				

Topic B: Self-Test

Mark   /24   **Aim 19/24**

A. Find the differences. Be sure to check your answers.   **6 marks**

a)
$$\begin{array}{r} 39 \\ -15 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 58 \\ -24 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 72 \\ -60 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 49 \\ -23 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 64 \\ -10 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 85 \\ -71 \\ \hline \end{array}$$

B. Find the differences. Be sure to check your answers.   **6 marks**

a)
$$\begin{array}{r} 896 \\ -385 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 698 \\ -461 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 399 \\ -202 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 467 \\ -124 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 752 \\ -231 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 497 \\ -341 \\ \hline \end{array}$$

C. Find the differences. Be sure to check your answers.   **6 marks**

a)
$$\begin{array}{r} 8\ 627 \\ -323 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9\ 875 \\ -9\ 251 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 9\ 751 \\ -7\ 340 \\ \hline \end{array}$$

d)   34 859   e)   37 698   f)   96 723
      − 1 336   − 12 540   − 51 403

D. Subtract these numbers.   **6 marks**

a)   85 − 61 =   b) 724 − 13 =

d)   879 − 152 =   d) 4 957 − 821 =

e)   94 658 − 12 307 =   f) 89 653 − 27 450 =

Topic C: Renaming

When you subtract, you may need to **rename**. Renaming means changing from one place value to another.

For example:

> 1 ten can be renamed as 10 ones
> 1 hundred can be renamed as 10 tens
> 1 thousand can be renamed as 10 hundreds.

Renaming is an important part of subtracting. Sometimes the digit on top is smaller than the digit you are subtracting. This means that you will have to rename before you can subtract. This is also called **borrowing**.

Example A: 293

2 hundreds, 9 tens, 3 ones

renamed 2 hundreds, **8 tens, 13 ones**

You borrow 1 ten. The 1 ten is renamed as 10 ones.

10 ones + 3 ones = 13 ones

Example B: 3 782

3 thousands, 7 hundreds, 8 tens, 2 ones

Renamed 3 thousands, **6 hundreds, 18 tens**, 2 ones

You borrow 1 hundred. The 1 hundred is renamed as 10 tens.

10 tens + 8 tens = 18 tens

Exercise One

Borrow from the number in the shaded box. Check your work using the answer key at the end of the exercise.

a)

	ten thousands	thousands	hundreds	tens	ones
423			4	2	3
			4	*1*	*13*

b)

	ten thousands	thousands	hundreds	tens	ones
642					

c)

	ten thousands	thousands	hundreds	tens	ones
1 456					

d)

	ten thousands	thousands	hundreds	tens	ones
5 423					

e)

	ten thousands	thousands	hundreds	tens	ones
6 384					

f)

	ten thousands	thousands	hundreds	tens	ones
9 537					

g)

	ten thousands	thousands	hundreds	tens	ones
2 461					

h)

	ten thousands	thousands	hundreds	tens	ones
5 678					

i)

	ten thousands	thousands	hundreds	tens	ones
57 347					

j)

	ten thousands	thousands	hundreds	tens	ones
36 789					

k)

	ten thousands	thousands	hundreds	tens	ones
46 124					

l)

	ten thousands	thousands	hundreds	tens	ones
36 154					

Answers to Exercise One

a)

	ten thousands	thousands	hundreds	tens	ones
642			6	4	2
			6	*3*	*12*

b)

	ten thousands	thousands	hundreds	tens	ones
1 456		1	4	5	6
		1	4	*4*	*16*

c)

	ten thousands	thousands	hundreds	tens	ones
5 423		5	4	2	3
		5	4	*1*	*13*

d)

	ten thousands	thousands	hundreds	tens	ones
6 384		6	3	8	4
		6	*2*	*18*	4

e)

	ten thousands	thousands	hundreds	tens	ones
9 537		9	5	3	7
		9	*4*	*13*	7

f)

	ten thousands	thousands	hundreds	tens	ones
2 461		2	4	6	1
		2	*3*	*16*	1

g)

	ten thousands	thousands	hundreds	tens	ones
5 678		5	6	7	8
		5	*5*	*17*	8

h)

	ten thousands	thousands	hundreds	tens	ones
57 347	5	7	3	4	7
	5	*6*	*13*	4	7

i)

	ten thousands	thousands	hundreds	tens	ones
36 789	3	6	7	8	9
	3	*5*	*17*	8	9

j)

	ten thousands	thousands	hundreds	tens	ones
46 124	4	6	1	2	4
	3	*16*	1	2	4

k)

	ten thousands	thousands	hundreds	tens	ones
36 154	3	6	1	5	4
	2	*16*	1	5	4

Sometimes there is a zero in the place where you want to borrow from. You will need to move one more place value to the **left** and borrow from there.

Example A: 203

2 hundreds, 0 tens, 3 ones

renamed **1 hundreds**, **10 tens,** 3 ones
You borrow 1 hundred. The 1 hundred is renamed as 10 tens.

1 hundred, **9 tens, 13 ones**
Then, you borrow 1 ten. The 1 ten is renamed as 10 ones.
10 ones + 3 ones = 13 ones

Example B: 30 782

3 ten thousands, 0 thousands, 7 hundreds, 8 tens, 2 ones
renamed **2 ten thousands, 10 thousands**, 7 hundreds, 8 tens, 2 ones
You borrow 1 ten thousand. The 1 ten thousand is renamed as 10 thousands.
2 ten thousands, **9 thousands, 17 hundreds**, 8 tens, 2 ones
Then, you borrow 1 thousand. The 1 thousand is renamed as 10 hundreds.
10 hundreds + 7 hundreds = 17 hundreds

Exercise Two

Borrow from the number in the shaded box. Check your work using the answer key at the end of the exercise.

a)

	ten thousands	thousands	hundreds	tens	ones
403			4	0	3
			3	*10*	3
			3	*9*	*13*

b)

	ten thousands	thousands	hundreds	tens	ones
501					

c)

	ten thousands	thousands	hundreds	tens	ones
904					

d)

	ten thousands	thousands	hundreds	tens	ones
307					

e)

	ten thousands	thousands	hundreds	tens	ones
2 056					

f)

	ten thousands	thousands	hundreds	tens	ones
1 069					

g)

	ten thousands	thousands	hundreds	tens	ones
4 032					

h)

	ten thousands	thousands	hundreds	tens	ones
6 095					

i)

	ten thousands	thousands	hundreds	tens	ones
10 869					

j)

	ten thousands	thousands	hundreds	tens	ones
70 361					

k)

	ten thousands	thousands	hundreds	tens	ones
50 428					

l)

	ten thousands	thousands	hundreds	tens	ones
50 921					

Answers to Exercise Two

a)

	ten thousands	thousands	hundreds	tens	ones
403			4	0	3
			3	*10*	3
			3	*9*	*13*

b)

	ten thousands	thousands	hundreds	tens	ones
501			5	0	1
			4	*10*	1
			4	*9*	*11*

c)

	ten thousands	thousands	hundreds	tens	ones
904			9	0	4
			8	*10*	4
			8	*9*	*14*

d)

	ten thousands	thousands	hundreds	tens	ones
307			3	0	7
			2	*10*	7
			2	*9*	*17*

e)

	ten thousands	thousands	hundreds	tens	ones
2 056		2	0	5	6
		1	*10*	5	6
		1	*9*	*15*	6

f)

	ten thousands	thousands	hundreds	tens	ones
1 069		1	0	6	9
		0	*10*	6	9
		0	*9*	*16*	9

g)

	ten thousands	thousands	hundreds	tens	ones
4 032		4	0	3	2
		3	*10*	3	2
		3	*9*	*13*	2

h)

	ten thousands	thousands	hundreds	tens	ones
6 095		6	0	9	5
		5	*10*	9	5
		5	*9*	*19*	5

i)

	ten thousands	thousands	hundreds	tens	ones
10 869	1	0	8	6	9
	0	*10*	8	6	9
	0	*9*	*18*	6	9

j)

	ten thousands	thousands	hundreds	tens	ones
70 361	7	0	3	6	1
	6	*10*	3	6	1
	6	*9*	*13*	6	1

k)

	ten thousands	thousands	hundreds	tens	ones
50 428	5	0	4	2	8
	4	*10*	4	2	8
	4	*9*	*14*	2	8

l)

	ten thousands	thousands	hundreds	tens	ones
50 921	5	0	9	2	1
	4	*10*	9	2	1
	4	*9*	*19*	2	1

Need more practice?

Ask your instructor for some play money. Using the one, ten, hundred, thousand, ten thousand and hundred thousand dollar bills, practice trading one of one type of bill for ten of the lesser place value.

Example:

ABE Bucks **$10** **Ten**	=	**ABE Bucks** **$1** **One**	**ABE Bucks** **$1** **One**
ABE Bucks **$1** **One**		**ABE Bucks** **$1** **One**	**ABE Bucks** **$1** **One**
ABE Bucks **$1** **One**		**ABE Bucks** **$1** **One**	**ABE Bucks** **$1** **One**
ABE Bucks **$1** **One**		**ABE Bucks** **$1** **One**	

ABE Bucks **$1** **One**

ABE Bucks **$1** **One**

ABE Bucks **$1** **One**

ABE Bucks **$1** **One**

ABE Bucks **$1** **One**

ABE Bucks **$1** **One**

Topic C: Self-Test

A. Borrow from the number in the shaded box.   **6 marks**

a)

	ten thousands	thousands	hundreds	tens	ones
783					

b)

	ten thousands	thousands	hundreds	tens	ones
827					

c)

	ten thousands	thousands	hundreds	tens	ones
7 942					

d)

	ten thousands	thousands	hundreds	tens	ones
5 364					

e)

	ten thousands	thousands	hundreds	tens	ones
28 634					

f) Rename the thousands.

	ten thousands	thousands	hundreds	tens	ones
62 751					

B. Borrow from the number in the shaded box.   6 marks

a)

	ten thousands	thousands	hundreds	tens	ones
602					

b)

	ten thousands	thousands	hundreds	tens	ones
805					

c)

	ten thousands	thousands	hundreds	tens	ones
3 075					

d)

	ten thousands	thousands	hundreds	tens	ones
7 048					

e)

	ten thousands	thousands	hundreds	tens	ones
30 478					

f)

	ten thousands	thousands	hundreds	tens	ones
80 946					

Answers to Topic C Self-Test
A.
a)

	ten thousands	thousands	hundreds	tens	ones
783			7	8	3
			7	*7*	13

b)

	ten thousands	thousands	hundreds	tens	ones
827			8	2	7
			8	*1*	*17*

c)

	ten thousands	thousands	hundreds	tens	ones
7 942		7	9	4	2
		7	*8*	*14*	2

d)

	ten thousands	thousands	hundreds	tens	ones
5 364		5	3	6	4
		5	*2*	*16*	4

e)

	ten thousands	thousands	hundreds	tens	ones
28 634	2	8	6	3	4
	2	*7*	*16*	3	4

f)

	ten thousands	thousands	hundreds	tens	ones
62 751	6	2	7	5	1
	6	*1*	*17*	5	1

B. Rename the number in the shaded box.

g)

	ten thousands	thousands	hundreds	tens	ones
602			6	0	2
			5	*10*	2
			5	*9*	*12*

h)

	ten thousands	thousands	hundreds	tens	ones
805			8	0	5
			7	*10*	5
			7	*9*	*15*

i)

	ten thousands	thousands	hundreds	tens	ones
3 075		3	0	7	5
		2	*10*	7	5
		2	*9*	*17*	5

j)

	ten thousands	thousands	hundreds	tens	ones
7 048		7	0	4	8
		6	*10*	4	8
		6	*9*	*14*	8

k)

	ten thousands	thousands	hundreds	tens	ones
30 478	3	0	4	7	8
	2	*10*	4	7	8
	2	*9*	*14*	7	8

l)

	ten thousands	thousands	hundreds	tens	ones
80 946	8	0	9	4	6
	7	*10*	9	4	6
	7	*9*	*19*	4	6

Topic D: Subtraction with Borrowing

When you subtract, the digit that you are taking away may be larger than the top digit in that same column. You must **borrow** from the column on the left. First, let's look at two examples using the place value shapes.

Example A: 243
             - 128
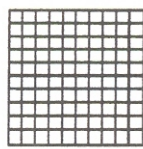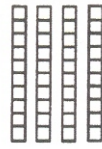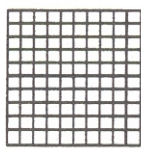
2 hundreds   4 tens   3 ones

Step 1: 3 ones – 8 ones cannot be done

Borrow one ten and rename it as ten ones. Add the ten ones to the three ones.
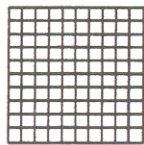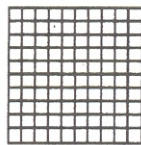
2 hundreds   3 tens 13 ones

Now you can subtract: **13 ones** - 8 ones = 5 ones

Step 2: Subtract the tens. **3 tens** – 2 tens = 1 ten

Step 3: Subtract the hundreds. 2 hundreds – 1 hundred = 1 hundred

Here is the question using numerals.

```
        3  13
      2 4̷ 3̷
    -  1 2 8
      1 1 5
```

Example B: 350
             - 124
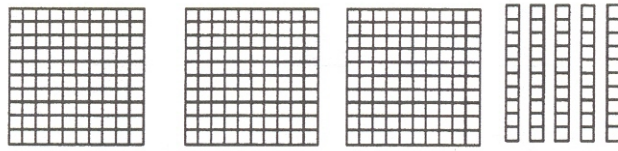
Step 1:   0 ones – 4 ones cannot be done
           Borrow one ten and rename it as ten ones.
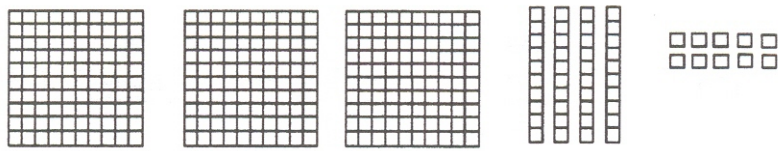
10 ones – 4 ones = 6 ones

Step 2:   **4 tens** – 2 tens = 2 tens

Step 3:   3 hundreds – 1 hundred = 2 hundreds

This is how the question looks using numerals.

$$\begin{array}{r} \overset{4\ \ 10}{3\cancel{5}\cancel{0}} \\ -\ 124 \\ \hline 226 \end{array}$$

Exercise One

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} \overset{4\ 13}{5\!\!\!/3\!\!\!/} \\ 16 \\ \hline 37 \end{array}$$

b)
$$\begin{array}{r} \overset{7\ 12}{8\!\!\!/2\!\!\!/} \\ -\ 45 \\ \hline 37 \end{array}$$

c)
$$\begin{array}{r} 37 \\ -\ 9 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 28 \\ -\ 4 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 63 \\ -\ 7 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 54 \\ -\ 5 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 25 \\ -\ 7 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 84 \\ -\ 6 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 45 \\ -\ 15 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 40 \\ -\ 38 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 45 \\ -\ 20 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 70 \\ -\ 21 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 645 \\ -\ 26 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 258 \\ -\ 14 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 786 \\ -\ 47 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 895 \\ -\ 29 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 747 \\ -\ 109 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 642 \\ -\ 420 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 438 \\ -\ 215 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 953 \\ -\ 838 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 532 \\ -\ 314 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 795 \\ -\ 238 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 956 \\ -\ 348 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 574 \\ -\ 218 \\ \hline \end{array}$$

Exercise Two

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 43 \\ -\ 9 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 54 \\ -\ 7 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 67 \\ -\ 8 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 38 \\ -\ 9 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 73 \\ -\ 49 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 82 \\ -\ 27 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 78 \\ -\ 39 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 64 \\ -\ 37 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 86 \\ -\ 59 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 91 \\ -\ 25 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 72 \\ -\ 16 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 83 \\ -\ 35 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 172 \\ -\ 37 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 621 \\ -\ 16 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 894 \\ -\ 19 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 930 \\ -\ 27 \\ \hline \end{array}$$

q) 692   r) 962   s) 983   t) 791
  − 568   − 543   − 464   − 778

u) 632   v) 940   w) 880   x) 981
  − 329   − 726   − 635   − 922

To check your subtraction, add the **answer** (the **difference**) to the number you took away. If your subtracting was correct, the result of the adding will equal the number you started with in the subtraction question.

Example A: 726
                    − 317
                      409   **difference**

            To check, add 409 to 317.

                      409
                    + 317
                      726   ✓

Exercise Three

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Use the method for checking your answer beside each question. Check your work using the answer key at the end of the exercise.

a)

$$\begin{array}{r} 42 \\ -5 \\ \hline 37 \end{array}$$

Check:

$$\begin{array}{r} 37 \\ +5 \\ \hline 42 \end{array} \quad \sqrt{}$$

b)

$$\begin{array}{r} 83 \\ -6 \\ \hline \end{array}$$

Check:

c)

$$\begin{array}{r} 91 \\ -7 \\ \hline \end{array}$$

Check:

d)

$$\begin{array}{r} 70 \\ -4 \\ \hline \end{array}$$

Check:

e)

$$\begin{array}{r} 64 \\ -37 \\ \hline \end{array}$$

Check:

f)

$$\begin{array}{r} 32 \\ -16 \\ \hline \end{array}$$

Check:

g)

$$\begin{array}{r} 65 \\ -16 \\ \hline \end{array}$$

Check:

h)

$$\begin{array}{r} 98 \\ -39 \\ \hline \end{array}$$

Check:

i)

$$\begin{array}{r} 775 \\ -49 \\ \hline \end{array}$$

Check:

j)

$$\begin{array}{r} 974 \\ -26 \\ \hline \end{array}$$

Check:

k)   483   *Check:*

  − 75

l)   896   *Check:*

  − 57

m)   785   *Check:*

  − 627

n)   961   *Check:*

  − 543

o)   941   *Check:*

  − 319

p)   850   *Check:*

  − 434

Answers to Exercise Three

a) 37	b) 377	c) 84	d) 66	e) 27	f) 16	g) 49
h) 59	i) 726	j) 948	k) 408	l) 839	m) 158	n) 418
o) 622	p) 416					

Use this same method of **borrowing** when you subtract the hundreds, thousands, ten thousands, and so on. Look at the place value shapes as you work through these examples.

Example A: 225
             - 162

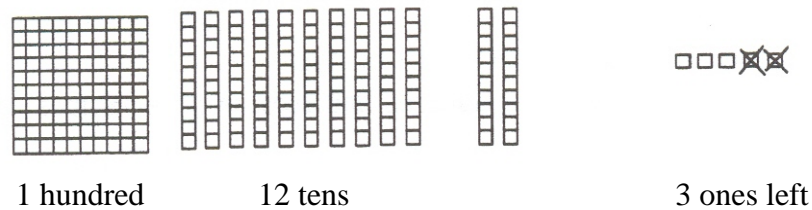2 hundreds   2 tens   5 ones
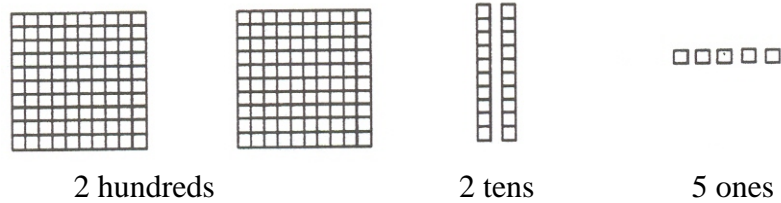
Step 1: 5 ones – 2 ones = 3 ones

Step 2: 2 tens – 6 tens (can't be done)
      Borrow one hundred and rename it as 10 tens which you add onto the 2 tens.

1 hundred   12 tens   3 ones left
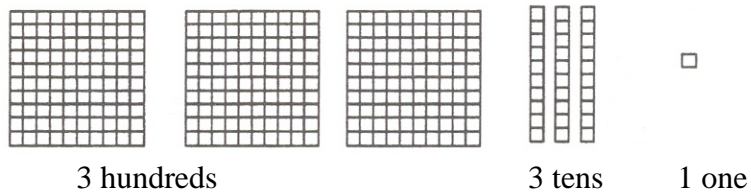
12 tens – 6 tens = 6 tens

Step 3:   1 hundred – 1 hundred = 0 hundreds

Note: The 0 in the hundreds is not needed in the answer (063) because it is the first digit and does not have to hold the place.

$$\begin{array}{r} {}^{1\;12}\!\!\not2\not2 5 \\ -\;162 \\ \hline 63 \end{array}$$
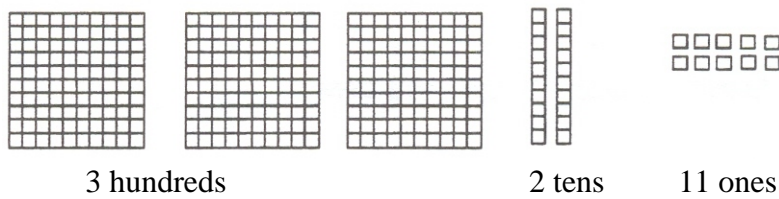
Example B: 331
                          - 145

                    3 hundreds   3 tens   1 one

Step 1:   1 one – 5 ones (can't be done)
        Borrow 1 ten and rename it as 10 ones which you add onto the 1 one.

            3 hundreds   2 tens   11 ones

    11 ones – 5 ones = 6 ones

Step 2:   2 tens – 4 tens (can't be done)
        Borrow one hundred and rename it as 10 tens which you add onto the 2 tens.

        2 hundreds   12 tens   6 ones left
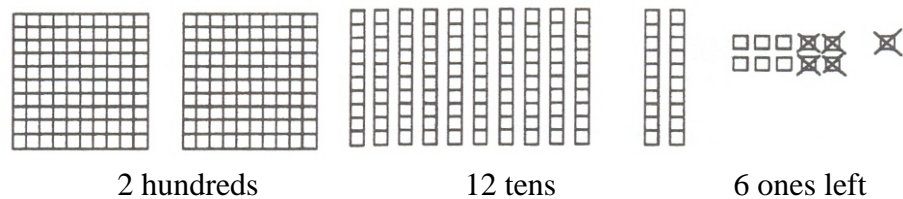
Step 3:   2 hundreds – 1 hundred = 1 hundred

                12
            2 2 11
              3̶3̶1̶   check   186
            - 145   + 145
              186   331   ✓

Exercise Four

Subtract the following. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} {}^{7\ 16} \\ 2\cancel{8}\cancel{6} \\ -\ 138 \\ \hline 148 \end{array}$$

b)
$$\begin{array}{r} {}^{7\ 11} \\ 4\cancel{8}\cancel{1} \\ -\ 225 \\ \hline 256 \end{array}$$

c)
$$\begin{array}{r} 390 \\ -\ 135 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 825 \\ -\ 673 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 734 \\ -\ 582 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 281 \\ -\ 175 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 925 \\ -\ 68 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 260 \\ -\ 154 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 379 \\ -\ 235 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 532 \\ -\ 290 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 82 \\ -\ 79 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 262 \\ -\ 39 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 427 \\ -\ 183 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 452 \\ -\ 173 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 692 \\ -\ 473 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 634 \\ -\ 273 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 465 \\ -\ 374 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 785 \\ -\ 147 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 937 \\ -\ 258 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 946 \\ -\ 463 \\ \hline \end{array}$$

u)   734   v)   563   w)   782   x)   621
          − 208   − 154   − 254   − 442

Answers to Exercise Four

a) 148	b) 256	c) 255	d) 152	e) 152	f) 106	g) 857
h) 106	i) 144	j) 242	k) 3	l) 223	m) 244	n) 279
o) 219	p) 361	q) 91	r) 638	s) 679	t) 483	u) 526
v) 409	w) 528	x) 179				

Exercise Five

Subtract the following. Check your work using the answer key at the end of the exercise.

a)   945   b)   698   c)   758   d)   594
        − 256   − 126   − 439   − 289

e)   491   f)   738   g)   569   h)   964
        − 113   − 167   − 243   − 745

i)   450   j)   681   k)   780   l)   514
        − 261   − 382   − 152   − 235

m)	859	n)	940	o)	536	p)	391
	-297		-426		-369		-158

q)	447	r)	671	s)	240	t)	912
	-239		-287		-149		-792

u)	274	v)	806	w)	560	x)	892
	-154		-784		-357		-284

Answers to Exercise Five

a) 689	b) 572	c) 319	d) 305	e) 378	f) 571	g) 326
h) 219	i) 189	j) 299	k) 628	l) 279	m) 562	n) 514
o) 167	p) 233	q) 208	r) 384	s) 91	t) 120	u) 120
v) 22	w) 203	x) 608				

Exercise Six

Subtract the following. Check your work using the answer key at the end of the exercise.

a)	776	b)	436	c)	957	d)	845
	-382		-327		-234		-416

e) $\begin{array}{r} 967 \\ -\ 173 \\ \hline \end{array}$ f) $\begin{array}{r} 406 \\ -\ 257 \\ \hline \end{array}$ g) $\begin{array}{r} 857 \\ -\ 143 \\ \hline \end{array}$ h) $\begin{array}{r} 757 \\ -\ 129 \\ \hline \end{array}$

i) $\begin{array}{r} 567 \\ -\ 182 \\ \hline \end{array}$ j) $\begin{array}{r} 952 \\ -\ 278 \\ \hline \end{array}$ k) $\begin{array}{r} 863 \\ -\ 389 \\ \hline \end{array}$ l) $\begin{array}{r} 689 \\ -\ 434 \\ \hline \end{array}$

m) $\begin{array}{r} 754 \\ -\ 526 \\ \hline \end{array}$ n) $\begin{array}{r} 572 \\ -\ 493 \\ \hline \end{array}$ o) $\begin{array}{r} 714 \\ -\ 588 \\ \hline \end{array}$ p) $\begin{array}{r} 795 \\ -\ 497 \\ \hline \end{array}$

q) $\begin{array}{r} 390 \\ -\ 256 \\ \hline \end{array}$ r) $\begin{array}{r} 745 \\ -\ 649 \\ \hline \end{array}$ s) $\begin{array}{r} 639 \\ -\ 484 \\ \hline \end{array}$ t) $\begin{array}{r} 811 \\ -\ 173 \\ \hline \end{array}$

u) $\begin{array}{r} 678 \\ -\ 290 \\ \hline \end{array}$ v) $\begin{array}{r} 740 \\ -\ 272 \\ \hline \end{array}$ w) $\begin{array}{r} 983 \\ -\ 876 \\ \hline \end{array}$ x) $\begin{array}{r} 839 \\ -\ 653 \\ \hline \end{array}$

Answers to Exercise Six

a) 394   b) 109   c) 723   d) 429   e) 794   f) 149   g) 714
h) 628   i) 385   j) 674   k) 474   l) 255   m) 228   n) 79
o) 126   p) 298   q) 134   r) 96   s) 155   t) 638   u) 388
v) 468   w) 107   x) 186

Now work through this example, where you must also rename one thousand as ten hundreds to do the subtraction.

$$3\ 245 - 1\ 678 = \underline{\hspace{2cm}}$$

Step 1:
$$\begin{array}{r} {}^{3\ 15} \\ 3\ 2\cancel{45} \\ -1\ 678 \\ \hline 7 \end{array}$$

Step 2:
$$\begin{array}{r} {}^{13} \\ {}^{1\ \cancel{3}\ 15} \\ 3\ \cancel{245} \\ -1\ 678 \\ \hline 67 \end{array}$$

Step 3:
$$\begin{array}{r} {}^{11\ \ 13} \\ {}^{2\ 1\ \cancel{3}\ 15} \\ 3\ \cancel{245} \\ -1\ 678 \\ \hline 567 \end{array}$$

Step 4:
$$\begin{array}{r} {}^{11\ \ 13} \\ {}^{2\ \cancel{1}\ \cancel{3}\ 15} \\ 3\ \cancel{245} \\ -1\ 678 \\ \hline 1\ 567 \end{array}$$

check
$$\begin{array}{r} {}^{1\ \ 1\ \ 1} \\ 1\ 567 \\ +1\ 678 \\ \hline 3\ 245 \end{array}$$

Exercise Seven

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 4\ 295 \\ -\ 724 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 8\ 281 \\ -\ 470 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 5\ 564 \\ -\ 644 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 6\ 382 \\ -\ 882 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 8\ 513 \\ -\ 829 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 3\ 527 \\ -\ 758 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 3\ 154 \\ -\ 205 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 2\ 640 \\ -\ 834 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 7\ 355 \\ -\ 4\ 038 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 5\ 189 \\ -\ 2\ 348 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 4\ 289 \\ -\ 2\ 534 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 6\ 753 \\ -\ 1\ 942 \\ \hline \end{array}$$

m)
$$8\ 684$$
$$-2\ 916$$

n)
$$7\ 459$$
$$-3\ 927$$

o)
$$8\ 360$$
$$-6\ 376$$

p)
$$9\ 418$$
$$-4\ 739$$

q)
$$75\ 762$$
$$-9\ 351$$

r)
$$72\ 641$$
$$-8\ 736$$

s)
$$16\ 793$$
$$-7\ 325$$

t)
$$12\ 533$$
$$-9\ 362$$

u)
$$72\ 209$$
$$-9\ 786$$

v)
$$34\ 092$$
$$-4\ 538$$

w)
$$42\ 126$$
$$-24\ 762$$

x)
$$52\ 750$$
$$-14\ 789$$

Answers to Exercise Seven

a) 3 571 b) 7 811 c) 4 920 d) 5 500 e) 7 684 f) 2 769 g) 2 949

h) 1 806 i) 3 317 j) 2 841 k) 1 755 l) 4 811 m) 5 768 n) 3 532

o) 1 984 p) 4 679 q) 66 411 r) 63 905 s) 9 468 t) 3 171 u) 62 423

v) 29 554 w) 17 364 x) 37 961

Exercise Eight

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$2\ 735$$
$$-846$$

b)
$$1\ 123$$
$$-417$$

c)
$$4\ 263$$
$$-859$$

d)
$$3\ 614$$
$$-923$$

e)   5 712
     − 747

f)   2 170
     − 995

g)   8 795
     − 844

h)   7 641
     − 789

i)   4 232
     − 3 496

j)   7 380
     − 1 467

k)   7 209
     − 2 686

l)   6 321
     − 3 518

m)   6 893
     − 1 931

n)   7 082
     − 4 675

o)   7 174
     − 6 318

p)   6 920
     − 5 253

q)   15 748
     − 6 926

r)   15 653
     − 7 856

s)   70 534
     − 7 689

t)   67 512
     − 9 923

u)   72 431
     − 5 316

v)   92 644
     − 6 741

w)   61 434
     − 27 429

x)   54 081
     − 36 835

Answers to Exercise Eight

a) 1 889 b) 706 c) 3 404 d) 2 691 e) 4 965 f) 1 175 g) 7 951

h) 6 852 i) 736 j) 5 913 k) 4 523 l) 2 803 m) 4 962 n) 2 407

o) 856 p) 1 667 q) 8 822 r) 7 797 s) 62 845 t) 57 589 u) 67 115

v) 85 903 w) 34 005 x) 17 246

Exercise Nine

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} {\scriptstyle 3\ 12\ 5\ 12} \\ \cancel{4\ 2\ 6\ 2} \\ -\ 2\ 738 \\ \hline 1\ 524 \end{array}$$

b)
$$\begin{array}{r} 3\ 236 \\ -\ 1\ 594 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 4\ 697 \\ -\ 3\ 268 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 8\ 321 \\ -\ 4\ 543 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 2\ 831 \\ -\ \ \ 289 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5\ 623 \\ -\ 3\ 352 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 8\ 428 \\ -\ 6\ 309 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 9\ 629 \\ -\ 7\ 258 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 5\ 230 \\ -\ 2\ 456 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 3\ 682 \\ -\ \ \ 963 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 29\ 285 \\ -\ 18\ 357 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 43\ 325 \\ -\ 3\ 187 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 81\ 328 \\ -\ 22\ 595 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 58\ 234 \\ -\ 23\ 678 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 28\ 243 \\ -\ 9\ 578 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 3\ 245 \\ -\ 1\ 678 \\ \hline \end{array}$$

q)   6 254   r)   5 214   s)   23 244   t)   16 121
       − 1 733   − 1 783   − 15 534   − 12 768

u)   53 507   v)   31 582   w)   71 629   x)   44 610
       − 14 421   − 14 413   − 12 350   − 13 071

Zeroes in Subtracting

You will have subtraction questions with a zero in the place that you want to borrow from. You have to do a double borrowing. Look carefully at the example.

Example: 2 405
                      $-$ 368

  Step 1: 5 ones – 8 ones (can't be done)
       Borrow one ten – whoops – no tens!
       Borrow one hundred and rename it as 10 tens…

        3 10
      2 4̸0̸5
     $-$ 368

       Now, borrow a ten. 15 ones – 8 ones = 7 ones

         9
      3 1̸0̸ 15
     2 4̸0̸5̸
    $-$ 368
       7

  Step 2: **9 tens** – 6 tens = 3 tens

  Step 3: 3 hundreds – 3 hundreds = 0 hundreds

  Step 4: 2 thousands – no thousands = 2 thousands

         9
      3 1̸0̸ 15
     2 4̸0̸5̸
    $-$ 368
     2 037

Exercise Ten   Find the differences. Check your work using the answer key at the end of the exercise.

a) 102
    − 23

b) 508
    − 39

c) 804
    − 37

d) 607
    − 48

e) 406
    − 178

f) 302
    − 218

g) 203
    − 157

h) 601
    − 296

i) 2 075
    − 436

j) 3 076
    − 594

k) 4 037
    − 289

l) 6 032
    − 764

m) 4 057
    − 2 049

n) 6 035
    − 2 634

o) 9 025
    − 4 603

p) 5 075
    − 2 364

q) 50 398
    − 4 247

r) 40 683
    − 3 162

s) 50 216
    − 5 183

t) 60 831
    − 7 081

u) 40 465   v) 30 429   w) 70 543   x) 80 106
    − 21 528   − 14 953   − 37 835   − 47 297

Exercise Eleven

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} {}^{3}\,{}^{\scriptsize9}\!\!\not{10}\,{}^{10} \\ \not{400} \\ -\ 197 \\ \hline 203 \end{array}$$

b)   307   c)   800   d)   608
    − 138   − 475   − 439

e)   307   f)   200   g)   400   h)   208
    − 168   − 99   − 43   − 126

i)   3 000
    − 2 678
	j) 7 205
	    − 2 306
		k) 2 048
		    − 281
			l) 6 005
			    − 2 368

m)   5 000
    − 3 468
	n) 4 006
	    − 2 179
		o) 3 007
		    − 1 930
			p) 2007
			    − 237

q)   43 004
    − 2 873
	r) 20 038
	    − 9 156
		s) 60 125
		    − 8 421
			t) 40 063
			    − 2 734

u)   70 059
    − 38 423
	v) 80 062
	    − 35 087
		w) 90 035
		    − 68 746
			x) 60 063
			    − 55 895

Answers to Exercise Eleven

a) 203   b) 169   c) 325   d) 169   e) 139   f) 101   g) 357

h) 82   i) 322   j) 4 899   k) 1 767   l) 3 637   m) 1 532   n) 1 827

o) 1 077   p) 1 770   q) 40 131   r) 10 882   s) 51 704   t) 37 329   u) 31 636

v) 44 975   w) 21 289   x) 4 168

If a subtraction question has the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, etc.

Example: 5 625 – 2 468 = _____

$$
\begin{array}{r}
^{11} \\
5\ \not{7}\ 15 \\
5\ \not{6}\not{2}\not{5} \\
-\ 2\ 468 \\
\hline
3\ 157
\end{array}
$$

Exercise Twelve

Rewrite each question in columns and find the difference.
Check your work using the answer key at the end of the exercise.

a)   5 042 – 3 185 =   b) 8 042 – 6 368 =

c)   2 630 – 95 =   d) 1 201 – 159 =

e)   34 582 − 6 121 =   f) 44 610 − 4 527 =

g)   54 507 − 13 421 =   h) 7 050 − 2 144 =

i)   71 629 − 12 350 =   j) 64 182 − 28 934 =

Topic D: Self-Test

Mark   /15   **Aim 11/15**

A. Find the differences. Be sure to check your answers using addition.   12 marks

a)
$$
\begin{array}{r}
71 \\
-\ 32 \\
\hline
\end{array}
$$

b)
$$
\begin{array}{r}
704 \\
-\ 325 \\
\hline
\end{array}
$$

c)
$$
\begin{array}{r}
400 \\
-\ 208 \\
\hline
\end{array}
$$

d)
$$
\begin{array}{r}
8\ 923 \\
-\ 3\ 061 \\
\hline
\end{array}
$$

e)
$$
\begin{array}{r}
5\ 211 \\
-\ 4\ 390 \\
\hline
\end{array}
$$

f)
$$
\begin{array}{r}
8\ 204 \\
-\ 3\ 461 \\
\hline
\end{array}
$$

g)
$$
\begin{array}{r}
9\ 074 \\
-\ 5\ 482 \\
\hline
\end{array}
$$

h)
$$
\begin{array}{r}
8\ 092 \\
-\ 6\ 578 \\
\hline
\end{array}
$$

i)
$$
\begin{array}{r}
49\ 053 \\
-\ 8\ 954 \\
\hline
\end{array}
$$

j)
$$
\begin{array}{r}
86\ 502 \\
-\ 6\ 590 \\
\hline
\end{array}
$$

k)
$$
\begin{array}{r}
47\ 293 \\
-\ 26\ 349 \\
\hline
\end{array}
$$

l)
$$
\begin{array}{r}
73\ 050 \\
-\ 27\ 455 \\
\hline
\end{array}
$$

B. Subtract.   **3 marks**

a)   5 302 − 3 981 =   b) 7 043 − 95 =

c)   6 000 − 989 =

Topic E: Estimating Answers in Subtraction

You have learned how to round numbers. Now you can use that skill in rounding numbers to find an **approximate** difference.

By estimating your answer first, you can tell if your answer is sensible.

In these examples, estimate the answer. Round each number **BEFORE** you subtract.

Example A:
$$\begin{array}{r} 47 \\ -\ 26 \end{array}$$ rounds to $$\begin{array}{r} 50 \\ -\ 30 \\ \hline 20 \end{array}$$

Example B:
$$\begin{array}{r} 870 \\ -\ 342 \end{array}$$ rounds to $$\begin{array}{r} 900 \\ -\ 300 \\ \hline 600 \end{array}$$

Example C:
$$\begin{array}{r} 24\ 397 \\ -\ 6\ 148 \end{array}$$ rounds to $$\begin{array}{r} 24\ 000 \\ -\ 6\ 000 \\ \hline 18\ 000 \end{array}$$

Usually you estimate to the largest place value that you can.

Exercise One

Estimate the differences. Round the numbers before you subtract. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 9\ 963 \\ -\ 7\ 099 \end{array} \approx \begin{array}{r} 10\ 000 \\ -\ 7\ 000 \\ \hline 3\ 000 \end{array}$$

b)
$$\begin{array}{r} 70\ 534 \\ -\ 7\ 689 \end{array} \approx \begin{array}{r} 71\ 000 \\ -\ 8\ 000 \\ \hline 63\ 000 \end{array}$$

c)
$$\begin{array}{r} 687 \\ -\ 438 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 754 \\ -\ 236 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 8\ 442 \\ -\ 1\ 876 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5\ 630 \\ -\ 1\ 752 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 5\ 342 \\ -\ 3\ 647 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7\ 111 \\ -\ 5\ 982 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 6\ 031 \\ -\ 2\ 899 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 41\ 573 \\ -\ 4\ 846 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 36\ 154 \\ -\ 9\ 038 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 46\ 124 \\ -\ 9\ 762 \\ \hline \end{array}$$

m)   54 751
      − 7 896

n)   72 450
     − 31 924

o)   81 692
     − 53 908

p)   92 163
     − 48 517

q)   171 234
      − 82 169

r)   102 085
      − 36 526

Answers to Exercise One

a) $10\,000 - 7\,000 = 3\,000$

b) $71\,000 - 8\,000 = 63\,000$

c) $700 - 400 = 300$

d) $800 - 200 = 600$

e) $8\,000 - 2\,000 = 6\,000$

f) $6\,000 - 2\,000 = 4\,000$

g) $5\,000 - 4\,000 = 1\,000$

h) $7\,000 - 6\,000 = 1\,000$

i) $6\,000 - 3\,000 = 3\,000$

j) $42\,000 - 5\,000 = 37\,000$

k) $36\,000 - 9\,000 = 27\,000$

l) $46\,000 - 10\,000 = 36\,000$

m) $55\,000 - 8\,000 = 47\,000$

n) $70\,000 - 30\,000 = 40\,000$

o) $80\,000 - 50\,000 = 30\,000$

p) $90\,000 - 50\,000 = 40\,000$

q) $170\,000 - 80\,000 = 90\,000$

r) $100\,000 - 40\,000 = 60\,000$

Estimating Answers in Subtraction Word Problems

When you are solving word problems, **an estimate tells you if your answer makes sense.**
You can use your estimate to help you check your answers. If your answer and the estimate
are not close, then you know that you should subtract your numbers again.

Exercise Two   Estimate the following answers. Be sure to round to the largest
place value possible before adding or subtracting. Remember to
circle the information and underline what is being asked.
Check your work using the answer key at the end of the exercise.

Example:

On a recent petition about sales tax, Mulan had 2 865 people sign. Arnav had 1 564 people
sign the petition. Estimate how many more people Mulan had sign than Arnav.

On a recent petition about sales tax, Mulan had 2 865 people sign. Arnav had 1 564
people sign the petition. Estimate how many more people Mulan had sign than Arnav.

$$\begin{array}{rr} & 2\ 865 \\ - & 1\ 564 \end{array} \qquad \textbf{Estimate:} \qquad \begin{array}{r} 3\ 000 \\ -\ 2\ 000 \\ \hline 1\ 000 \end{array}$$

Mulan had 1 000 more people sign the petition.

a) On Tuesday, a coffee shop had sales of $8 523. On Wednesday, the same coffee shop
had sales of $6 914. Estimate the difference between Tuesday's sales and
Wednesday's sales.

b) Last week, 4 931 passengers used the ABE Taxi Company. This week, there were 3 491 passengers. Estimate how many more passengers used ABE Taxi Company last week.

c) In Japan, people chew 52 700 tons of gum. In Russia, people chew 25 700 tons of gum. Estimate the how many more tons of gum the Japanese chew.

d) In Colombia there are 1 897 bird species. In China, there are 1 319 bird species. Estimate how many more bird species there are in Colombia.

e) The whale shark weighs 30 500 kilograms. The basking shark weighs 9 258 kilograms. Estimate how much more the whale shark weighs.

f) In India there were 155 204 post offices in 2007. In China there were 59 886 post offices. Estimate the difference.

g) By 2008, the Montreal Canadiens had played the most games 5 792. The Buffalo Sabres had played 2 952. Estimate how many more games the Montreal Canadiens had played.

h) In 2006, the population of Kelowna was 162 276. The population of Prince George was 83 225. Estimate how many more people live in Kelowna in 2006.

Topic E: Self-Test   **Mark**   **/18**   **Aim 14/18**

A. Estimate the differences. Show your work.   **12 marks**

a)   73
        − 34

b)   67
        − 18

c)   896
        − 385

d)   467
        − 214

e)   4 071
        − 2 986

f)   5 946
        − 4 281

g)   57 201
        − 5 892

h)   23 006
        − 4 999

i)   49 053
        − 28 954

j)   36 174
        − 16 925

k)   86 502
        − 26 590

l)   943 982
        − 721 354

B. Estimate each of the following word problems.   **6 marks**
   Be sure to <u>include</u> the unit of measure in your answer.   **(2 marks each)**
   Be sure to ⟨circle⟩ information and <u>underline</u> what is being asked.

   a) A magazine has 54 823 readers. Last year the magazine had 26 876 readers. By how
       much did number of readers increase?

   b) In 2009, the number of marriages per year in Japan was 964 702. The number of
       marriages per year in Egypt was 525 412. How many more marriages were there in
       Japan than Egypt?

   c) In 2010, in France there were 235 846 people with the last name Martin. There were
       78 177 people with the last name Moreau. How many more Martins were there?

Answers to Topic E Self-Test

A.

a)	40	b)	50	c)	500	d)	300	e)	1 000
f)	2 000	g)	51 000	h)	18 000	i)	20 000	j)	20 000
k)	60 000	l)	200 000						

B.

a) 20 000 readers   b) 500 000 marriages   c) 160 000 Martins

Topic F: Problem Solving

Why are you studying mathematics?

Some of you are taking math because you "have to…", but we hope you all want to have math skills to help you in your jobs, in job training, and in your everyday life. Numbers are an important part of our lives – we are surrounded by numbers.

Numbers are not often by themselves or set up neatly on a page for us to add or subtract. Numbers are usually in the middle of sentences and mixed in with other numbers. Sorting out the numbers you want and deciding what to do with those numbers is called **problem solving.**

You are going to learn five problem solving steps that will be useful in **all** your math work in courses, in jobs, and in your everyday life.

Problem Solving Steps

Step 1:

READ or LISTEN TO the problem carefully. **UNDERSTAND** the problem. Are there words that help you imagine what is happening? Can you draw a picture or diagram to show what is happening? Can you say the problem in your own words? What is the **QUESTION**? Underline it.

Step 2:

What does the problem tell you? What do you know? Write down or ⟨circle⟩ the **INFORMATION** you have. Often you have more information than you need. Think about the question you need to answer and use only the information that will help you answer that question. What do you want to find out?

Step 3:

What must you do with the information to answer the question? What **ARITHMETIC OPERATION** should you use – addition, subtraction, multiplication or division? You will be learning **key words** and **patterns** that will help you choose the correct operation. Write an equation for the problem An equation is a number sentence such as

$$12 + 5 = \underline{\hspace{2cm}}$$

Step 4:   **ESTIMATE** the answer.

- Round the numbers so you can work with them quickly.

- Use the operation you chose in Step 3 and come to a quick answer.

- Does this estimated answer make sense? Does it answer the question in the problem? **THINK** about this before you do Step 5.

Step 5:   **SOLVE** the problem using the **actual** numbers.

- Check your arithmetic calculations.

- Compare your result to your estimated answer.

- Reread the problem. Does your answer make sense?

- Write a sentence answer to the problem.

You must always say **what** the numbers are counting. "He has 4," means nothing. We need to know 4 what… 4 children? 4 dogs? 4 dollars? These are called the **units.**

Some abbreviations used with numerals:

kilometre	km	metre	m
centimetre	cm	kilogram	kg
gram	g	litre	L
hour	h	minute	min

Now study the three example problems that show the five steps.

Example A:

Jorge earned $165 last week and $142 this week in his job pumping gas at the service station. He spent $15 on his girlfriend's gift. How much did he earn pumping gas?

Step 1:   **READ. UNDERSTAND THE PROBLEM. FIND THE QUESTION. <u>Underline</u> it.**

How much did Jorge earn pumping gas?

Step 2:   Find the **NEEDED INFORMATION**. Circle it.
Jorge earned $165 and $142.

The information about his girlfriend's gift has nothing to do with finding out how much he earned.

Step 3:   What **ARITMETIC OPERATION** to use?
*We are putting together two amounts. That is **addition**.*

The equation: $165 + $142 = what he earned.

Step 4:   **ESTIMATE.**
$165 ≈ $170 or $200
+ $142 ≈ $140 or $100
$310 $300

*Is about $300 a reasonable answer to the question? Is it sensible to earn $300 for two weeks of pumping gas? Probably. $3 000 would **NOT** be sensible, and $30 would **NOT** be sensible.*

Step 5:   **SOLVE, CHECK, WRITE A SENTENCE ANSWER.**
$165   *Check by adding again.* ✔
+ $142   *Is $307 close to the estimate?* ✔
$307   *Make sense?* ✔

Jorge earned $307 pumping gas.

Example B:

The town of Gloryville had a population of 4 206 people before the mill had a big lay-off in May 2007. Since then 858 people have moved away. Find the population of Gloryville now.

Step 1:   **READ, UNDERSTAND THE PROBLEM, FIND THE QUESTION. <u>Underline</u> it.**

                      <u>Find the population of Gloryville now.</u>

Step 2:   **CIRCLE NEEDED INFORMATION**

                      4 206   *people before*
                      858   *people moved away*

                      The date of the lay-off is not needed to answer the question.

Step 3:   **OPERATION**
                      *One amount is being taken away. That is **subtraction**.*
                      ***Equation**: 4 206 – 858 = people in Gloryville now.*

Step 4:   **ESTIMATE**
                      4 206 ≈ 4 000 or 4 200
                    - 858 ≈ 1 000 or – 900
                          3 000   3 300

Step 5:   **SOLVE, CHECK, WRITE SENTENCE ANSWER**

                    11 9
                    3 1 10 16   1 1 1
                    4 206   check: 3 348
                    - 858   + 858
                    3 348   4 206 ✓

                    Close to estimate? ✓
                    Makes sense? ✓

                    Gloryville has a population now of 3 348 people.

Example C:

Paul works at a lumber mill and is paid every two weeks. He has an account at the bank.
Today he got a cheque for $845. He and his wife decided to deposit $600 in the account and
keep the rest of the money out for a weekend trip. How much money did Paul and his wife
keep out for the weekend trip?

Step 1:   **QUESTION**
                    How much money did Paul and his wife keep for the weekend trip?

Can I draw a picture or diagram?
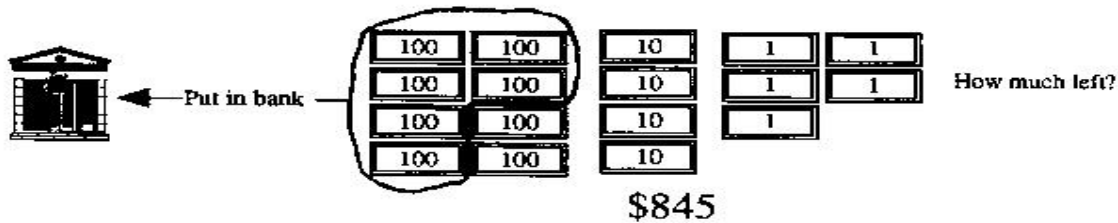
Step 2:   **NEEDED INFORMATION**
                    Paul got a cheque for $845 *for two weeks work.*
                    He and his wife decided to put $600 *in their account.*

Step 3:   **OPERATION**
                    One amount is being taken away. That is **subtraction**.
                    Equation: $845 — $600 = *money left over for weekend trip*

Step 4:   **ESTIMATE**
$$\$845 \approx 850$$
$$\underline{- \$600\ \approx\ 600}$$
$$\$250$$

Step 5:   **SOLVE, CHECK, WRITE SENTENCE ANSWER**

$$\begin{array}{ccc} \$845 & check: & \$250 \\ \underline{-\ \$600} & & \underline{+\ \$600} \\ \$245 & & \$845\ \checkmark \end{array}$$

Close to estimate? ✔
Makes sense? ✔

Paul and his wife have $245 *for the weekend trip.*

Addition Problems

The problems in this section all use the addition operation to find the solution (the answer to the problem). Addition problems give two or more amounts that must be put together (added). When you read the problems, pay special attention to **key words** and **patterns** that will help you to recognize other addition problems.

```
┌─────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────┐  │
│  │        Key words that point to ADDITION           │  │
│  │                                                   │  │
│  │    sum            total           altogether      │  │
│  │    combine        entire          complete        │  │
│  │                   in all                          │  │
│  └───────────────────────────────────────────────────┘  │
└─────────────────────────────────────────────────────────┘
```

Exercise One   Do these problems by following the five problem solving steps. It is good practice to write down each step while you are learning this method. Check your work using the answer key at the end of the exercise.

a) It was raining so Gita decided to bake several batches of cookies and freeze them. She made 75 chocolate chip cookies, 96 of her son's favourite ginger snaps, and 42 fancy "Birds' nest" cookies for when she had company. How many cookies did Gita bake altogether?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem? Circle it.

Step 3: What **arithmetic operation** should you use? *addition* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

b) Levi wanted to paint his apartment and needed to buy some supplies. Brushes cost $10, sandpaper cost $4, a paint roller and tray cost $9 and the paint was $55. How much did it cost for all the paint supplies?

Step 1:   What is the **question? Underline it.**

Step 2:   What **information** are you given that you **need** to solve the problem? Circle it.

Step 3:   What **arithmetic operation** should you use? *addition* Why?

Step 4:   **Estimate** the answer using rounded numbers.

Step 5:   Solve, check, and write a sentence answer.

c) Altogether, the college has 475 students in the Adult Basic Education department, 320 University Transfer students, 64 students in the Early Childhood Education program, 232 students in the Forestry department, and 125 students in trades courses. How many students are at the college?

Step 1:   What is the **question? Underline it.**

Step 2:   What **information** are you given that you **need** to solve the problem? Circle it.

Step 3:   What **arithmetic operation** should you use? *addition* Why?

Step 4:   **Estimate** the answer using rounded numbers.

Step 5:   Solve, check, and write a sentence answer.

d) Zhou works part-time at the daycare centre. Last month she worked every week. The first week she worked 24 hours, 36 hours the second week, 29 hours the third week, and only 17 hours in the fourth week. Give the total number of hours that Zhou worked last month.

Step 1:   What is the **question? Underline it.**

Step 2:   What **information** are you given that you **need** to solve the problem? Circle it.

Step 3:   What **arithmetic operation** should you use? *addition* Why?

Step 4:   **Estimate** the answer using rounded numbers.

Step 5: Solve, check, and write a sentence answer.

The rest of the problems in this exercise just ask you for the estimate and the actual solution. You must still follow all five steps but you do not have to write everything down. Remember that the solution to problems must include the units (what is being counted) and should be written in a sentence answer.

e) September is hard on the family budget! Amul figured they spent $275 for clothes and shoes for their two little daughters, $43 for school supplies, $24 for haircuts, and $130 to enroll them in the Figure Skating Club. How much has Amul spent getting his children ready for school and skating?

Estimation:

Actual Solution:

f) The sign in the elevator says "1200 kg maximum weight". Can the elevator hold all these large football players safely? Sean weighs 91 kg, Raja is 114 kg, Eyota is a heavyweight at 159 kg. Kiefer is even heavier at 168 kg, the two fullbacks weigh 135 kg and 148 kg, and the quarterback Juan is a muscular 87 kg. Find their combined weight to see if they are all safe in the elevator.

Estimation:

Actual Solution:

g) On their holidays, the Matthews family drove to Saskatchewan from their home in Langley. They drove 620 km the first day, 810 km the second day, and only drove 350 km the next day because they went to Head Smashed-in Buffalo Jump Museum. On the fourth day, they drove a long 1 208 km. How many kilometres did they drive on their trip to Saskatchewan?

Estimation:

Actual Solution:

Answers to Exercise One (The wording in the sentences will vary, but this is the idea.)

a) 1) <u>How many cookies altogether?</u>
    2) She made 75, 96, and 42 cookies.
    3) All the amounts have to be put together to find a total.
    4) $80 + 100 + 40 = 220$ cookies
    5) $75 + 96 + 42 = 213$ cookies   Gita baked 213 cookies altogether.

b) 1) <u>How much did it cost for all the paint supplies</u>?
    2) He paid $10, $4, $9 and $55.
    3) All the amounts have to be put together to find a total.
    4) Rounding one digit numbers isn't too helpful, but $10 + $0 + $10 + $60 = $80
    5) $10 + $4 + $9 + $55 = $78   Levi paid $78.

c) 1) <u>How many students at the college?</u>
    2) There are 475, 320, 232, and 125 students.
    3) You must find a total.
    4) $500 + 300 + 100 + 200 + 100 = 1\ 200$ students
    5) $475 + 320 + 64 + 232 + 125 = 1\ 216$ students.   The college has 1 216 students.

d) 1) <u>How many hours did Zhou work last month?</u>
    2) She worked 24, 36, 29, and 17 hours.
    3) You are looking for an amount altogether.
    4) $20 + 40 + 30 + 20 = 110$ hours
    5) $24 + 36 + 29 + 17 = 106$ hours   Zhou worked 106 hours last month.

e) $472 altogether   f) 902 kg altogether; safe   g) 2 988 km

Subtraction Problems

These problems will give you a change to "get the feel" of subtraction problems.

Subtraction problems tell you an amount and then take something away from that amount. Money might be spent, saved, or deducted (taken off), people might move away, items might be sold or lost. These types of subtraction problems are quite easy to recognize.

A more difficult type of subtraction problem **compares two amounts**. You will be asked to **find the difference** between the amounts. Subtract to find the difference. These problems might ask you "how much more?", "how much less?", "how many fewer?", "how much farther?", "how much did it increase (go up)?", "what is the decrease (amount it went down)?" You might also have to find the age of something by comparing the dates.

<div style="border:solid">

Key Words that point to SUBTRACTION

difference   balance   amount left   the saving

how much more (or greater, or farther)

how much less (or fewer, or smaller)

how old, find the age

</div>

Exercise Two

Use the five problem steps to solve these problems. Write down each step for the first three problems. Check your work using the answer key at the end of the exercise.

a) Only 368 people went to the movie theatre on Friday night, but on Saturday 756 went to see the new comedy movie they were showing. How many more people went to the theatre on Saturday than on Friday?

Step 1:   What is the **question? Underline it.**

Step 2:   What **information** are you given that you **need** to solve the problem? (**Circle**) it.

Step 3:   What **arithmetic operation** should you use? *subtraction* Why?

Step 4:   **Estimate** the answer using rounded numbers.

Step 5:   **Solve, check, and write a sentence answer.**

b) The highway construction started in 2004 and it was finished in 2010. How long did the construction take?

      Step 1:   What is the **question?** __Underline__ **it.**

      Step 2:   What **information** are you given that you **need** to solve the problem?
           Circle it.

      Step 3:   What **arithmetic operation** should you use? *subtraction* Why?

      Step 4:   **Estimate** the answer using rounded numbers. In a question like this, an estimation using rounded numbers is not useful because the numbers are too similar and would round to the same number. Instead, think about the question carefully and figure out an approximate answer in your head.

      Step 5:   **Solve, check, and write a sentence answer.**

c) Aimee's gross pay was $1 656, but she had $331 of deductions. What is her net pay?
    (*Gross pay* is the amount we earn before anything is taken off. *Net pay* is the amount
    we take home after taxes, pension, employment insurance, etc. have been deducted.)

>   **Step 1**: What is the **question? Underline it.**

>   **Step 2**: What **information** are you given that you **need** to solve the problem?
>   Circle it.

>   **Step 3**: What **arithmetic operation** should you use? *subtraction* Why?

>   **Step 4**: **Estimate** the answer using rounded numbers.

>   **Step 5**: **Solve, check, and write a sentence answer.**

d) Mike and Ann want to can 240 jars of fruit this year. They have already canned 165 jars. How many more jars do they need to do?

   Estimation:

   Actual Solution:

e) Jian has purchased a used car for $3599. He has paid $450 so far. How much more money does he owe?

   Estimation:

   Actual Solution:

f) In 1956 the population of the town was 10 874. Many people left after the dam construction was finished. The population in 1989 was only 7 892 people. How much less was the population in 1989 than in 1956?

Estimation:

Actual Solution:

Answers to Exercise Two

a) 1) <u>How many more people at the theatre on Saturday than on Friday?</u>

    2) 368 people on Friday; 756 on Saturday

    3) You must find the difference between two amounts.

    4) 800 – 400 = 400 more people on Saturday

    5) 756 – 368 = 388 more people on Saturday.

b) 1) <u>How long did the construction take?</u>

    2) Started in 2004; ended in 2010.

    3) Find the difference between the two dates.

    4) Think "from 2004 to 2010 – about 5 years"

    5) 2010 – 2004 = 6 years for the road construction

c) 1) <u>What is Aimee's net pay?</u>

    2) Her gross pay was $1 656 and she had $331 taken off (deducted).

    3) Subtract to find how much is left.

    4) $1 700 - $300 = $1 400

    5) $1 656 - $331 = $1 325 net pay

d) 75 jars   e) $3 149 still owed   f) 2 982 people less

Mixed Addition and Subtraction Problems

Exercise Three   Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers **if** the numbers have 2 digits or more. Check your work using the answer key at the end of the exercise.

a) Enrico worked 37 hours one week and 26 hours the next week. How many hours did he work?

Estimation:

Actual Solution:

b) Myung-Hee had $85. She spent $37 for groceries. How much did she have left?

Estimation:

Actual Solution:

c) Ann bought 25 kg of potatoes. She used 13 kg the first week. How much did she have left?

Estimation:

Actual Solution:

d) The sign in a furniture store read, "$35 off all chairs." How much will a chair cost that was $125 before the sale?

Estimation:

Actual Solution:

e) Guillaume bought a pair of jeans for $29 at a sale. When he got home, he found the price tag on the jeans had been $48. How much did Guillaume save?

Estimation:

Actual Solution:

f) British Columbia has an area of 947 800 square kilometres. The area of Alberta is 666 190 square kilometres. BC is how much larger than Alberta?

Estimation:

Actual Solution:

g) Maxine paid $26 for an electric iron and $39 for an ironing board. How much did she pay for both?

      Estimation:

      Actual Solution:

h) Ang bought a used TV set for $125. She made a down payment of $40. How much does she still owe on the set?

      Estimation:

      Actual Solution:

i) Paulo had $325 in the bank. He wrote a cheque for $76. How much money did he
    have left in the bank?

    Estimation:

    Actual Solution:

j) Mizu weighs 99 kg. Akula weighs 81 kg. How much heavier is Mizu than Akula?

    Estimation:

    Actual Solution:

k) Kenji has three children. One weighs 25 kg, another weighs 20 kg, and the last weighs 17 kg. How much do they weigh together?

Estimation:

Actual Solution:

l) Rafael bought a boat priced at $8 400. He was given $1 250 as a trade-in on his old boat. How much does he owe on the new boat?

Estimation:

Actual Solution:

m) Last week Luis earned $212. The week before he earned $198. This week he earned $133. How much did he earn in all?

Estimation:

Actual Solution:

n) Jakob went on a trip of 739 km. The first day he drove 561 km. How many kilometres did he have left to drive?

Estimation:

Actual Solution:

o) In 2005 Jacques' net income was $29 675. In 2006 his net income was $30 207.
How much more did he earn in 2006?

Estimation:

Actual Solution:

Answers to Exercise Three

a) 63 hours	b) $48 left	c) 12 kg of potatoes left
d) $90 for the chair	e) $19 saved	f) 281 610 square kilometres
g) $65 in all	h) $85 still owed	i) $249 left in the bank
j) 18 kg heavier	k) 62 kg altogether	l) $7 150 still owed
m) $543 in all	n) 178 km left to drive	o) $532 more

Two-Operation Questions

Sometimes you may need to use two operations to solve a question. We work from left to right when solving questions that involve two operations. If addition is first, you must do the addition first then the subtraction. If subtraction is first, you must do the subtraction first and then do the addition.

Example A: $342 + 325 - 146 =$

Step 1:
$$\begin{array}{r} 342 \\ + 325 \\ \hline 667 \end{array}$$

Step 2: Use your answer and subtract 146.

$$\begin{array}{r} 667 \\ - 146 \\ \hline 521 \end{array}$$

$$342 + 325 - 146 = 521$$

Example B: $475 - 284 + 362 =$

Step 1:
$$\begin{array}{r} 475 \\ - 284 \\ \hline 191 \end{array}$$

Step 2: Use your answer and add 362.

$$\begin{array}{r} 191 \\ + 362 \\ \hline 553 \end{array}$$

$$475 - 284 + 362 = 553$$

Exercise Four   Find the sum or difference for each question. Check your work using the answer key at the end of the exercise.

a) $312 + 541 - 135 =$

b) $427 + 231 - 384 =$

c) $687 - 434 + 256 =$

d) $754 - 576 + 393 =$

e) $1\,456 + 218 - 295 =$

f) $2\,461 + 723 - 349 =$

g) $3\,857 - 665 + 1\,234 =$

h) $4\,367 - 843 + 5\,679 =$

i) $5\,247 + 2\,216 - 4\,673 =$

j) $1\,285 + 4\,672 - 1\,401 =$

k) $7\,354 - 4\,038 + 2\,348 =$

l) $4\,187 - 2\,574 + 1\,846 =$

m) $5\,314 + 7\,053 - 597 =$ n) $4\,315 + 3\,197 - 2\,106 =$

o) $46\,124 - 9\,762 + 2\,534 =$ p) $70\,534 - 7\,689 + 1\,824 =$

Answers to Exercise Four

a)	718	b)	274	c)	509	d)	571	e)	1 379	f)	2 835	g)	4 426
h)	9 203	i)	2 790	j)	4 556	k)	5 664	l)	3 459	m)	11 770	n)	5 406
o)	38 896	p)	64 669											

Two-Operation Problems

Sometimes you may need to use more than one operation to solve a word problem or a real-life problem.

Example A: Janet bought a submarine sandwich for $5, a soft drink for $1, and some carrot cake for $3. She gave the cashier a twenty dollar bill. How much money did she get back as change?

Step 1: **Question** – *How much change from $20?*

Step 2: **Information** – Spent *$5 and $1 and $3. Gave cashier $20.*

Step 3: **Operations**
1. *Add the amounts she spent to find the total.*
   $5 + $1 + $3 = _____
2. *Subtract the amount she spent from $20.*
   $20 – total of what she spent = change

Step 4: **Estimate**
Numbers are only one digit so do not round them. But a quick add tells you that her change will be about $10.

Step 5: **Solve**
1. *$5 + $1 + $3 = $9 total spent*
2. *$20 - $9 = $11*

Janet will get $11 in change.

Exercise Five   Use the 5 problem solving steps. Look for key words and
patterns to help you choose the correct operation. Estimate the
answer using rounded numbers **if** the numbers have 2 digits or
more. Show all your work. Check your work using the answer
key at the end of the exercise.

a) Maureen weighed 72 kg and decided to go on a diet for her New Year's Resolution.
She lost 3 kg in January, 2 kg in February, and 4 kg in March. How much did she
weigh after her three month diet?

     Estimation:

     Actual Solution:

b) The local Girl Guides and Brownies had a goal to sell 2 850 boxes of Girl Guide
cookies. In the first week the Brownies sold 975 boxes and the Guides sold 1 138
boxes. How many more boxes do they need to sell to reach their goal?

     Estimation:

     Actual Solution:

c) Pat is ready to start first year college; she received a Passport to Education award from the provincial government which was $625. She got a Rotary Club Scholarship of $250 and a science scholarship of $400. Her first year's tuition and books are going to cost $2 000. Pat will use all her awards and scholarships. How much more money will she need to pay?

   Estimation:

   Actual Solution:

d) The elementary school had 83 girls and 95 boys enrolled in September. Five of the girls and three of the boys moved away in September. How many children were still enrolled in the school at the end of September?

   Estimation:

   Actual Solution:

e) Franco is on a 1 200 calorie-a-day diet. He had 320 calories at breakfast and 468 calories at lunch. How many calories does he have left for dinner?

f) Lilo had a total of 150 hats in four boxes. In box one there were 72 hats. In box two, there were 28 hats. In box three, there were 47 hats. How many hats were in box four?

g) Miguel wanted to buy a Blue ray player for $225. He got $65 for his birthday. He won $75. How much more money does Miguel need?

h) Kehara and Omar decided to visit their grandmother who lives 160 kilometres away. They travelled 50 kilometres and stopped for gas. They travelled another 30 kilometres and stopped for lunch. How much farther is it to their grandmother's house?

i) Kuen had $7 342 in his bank account. He decided to buy a new television for $1 139. Kuen was able to save another $697. How much does Kuen have in his bank account?

j) Giles wishes to buy three gifts that cost $15, $9 and $12. He has $11 of the money he needs. How much more money does he need to earn in order to buy the gifts?

k) Colette bought items costing $34, $19, $65 and $129. She used a coupon worth $75. How much money does she still owe?

l) Sahale had 25 metres of fencing. He wanted to fence his garden that was 53 metres long and 38 metres wide. How much more fencing does Sahale need to buy? (**Hint:** To put a fence around means the perimetre. Draw a picture before you begin.)

Answers to Exercise Five

a) 63 kg   b) 737 boxes of cookies more   c) $725 more   d) 170 children still enrolled

e) 412 calories   f) 3 hats   g) $85 more   h) 80 kilometres

i) $6 900   j) $25 more   k) $172   l) 157 metres

Topic F: Self-Test

A. Solve these problems. Show all your work. Give yourself one mark for the correct method and one mark for the correct answer.   **14 marks**

   a) Alice weighed 86 kg. She went on a diet. Now she weighs 69 kg. How much did she lose?

     Estimation:

     Actual Solution:

   b) Jacques spent $49 on a pair of jeans, $18 for a shirt, $12 for a belt, and $3 for socks. How much did he spend altogether?

     Estimation:

     Actual Solution:

c) A bookshelf had 94 books on the top shelf, 86 on the middle shelf, and 79 on the bottom shelf. How many books are there on the three shelves?

      Estimation:

      Actual Solution:

d) Mahad bought a new car for $9 989. He traded in his old car for $1 785. How much more was the new one than the value of his trade-in?

      Estimation:

      Actual Solution:

e) Kian and Toran picked apples for their uncle. Kian picked 509 kg and Toran picked 436 kg. (4 marks)

   i) How many more kilograms of apples did Kian pick than Toran?

   Estimation:

   Actual Solution:

   ii) How many kilograms of apples did they pick together?

   Estimation:

   Actual Solution:

f) During an election, Dominique counted 4 721 votes and 8 956 votes. The number of spoiled ballots was 1 639. How many were good votes? (This question is worth 4 marks).

Unit 3 Review - Subtraction

You will now practice all of the skills you learned in Unit 3. Check your work using the answer key at the end of the review

A.   **Find the differences.**

a) $\begin{array}{r} 58 \\ -24 \\ \hline \end{array}$

b) $\begin{array}{r} 99 \\ -65 \\ \hline \end{array}$

c) $\begin{array}{r} 98 \\ -75 \\ \hline \end{array}$

d) $\begin{array}{r} 87 \\ -34 \\ \hline \end{array}$

e) $\begin{array}{r} 45 \\ -21 \\ \hline \end{array}$

f) $\begin{array}{r} 76 \\ -35 \\ \hline \end{array}$

B.   **Find the differences.**

a) $\begin{array}{r} 995 \\ -423 \\ \hline \end{array}$

b) $\begin{array}{r} 987 \\ -316 \\ \hline \end{array}$

c) $\begin{array}{r} 579 \\ -458 \\ \hline \end{array}$

d) $\begin{array}{r} 877 \\ -602 \\ \hline \end{array}$

e) $\begin{array}{r} 468 \\ -432 \\ \hline \end{array}$

f) $\begin{array}{r} 686 \\ -271 \\ \hline \end{array}$

C.   **Find the differences.**

a) $\begin{array}{r} 1\ 265 \\ -541 \\ \hline \end{array}$

b) $\begin{array}{r} 4\ 587 \\ -534 \\ \hline \end{array}$

c) $\begin{array}{r} 6\ 889 \\ -2\ 506 \\ \hline \end{array}$

d)   7 936   e)   62 589   f)   54 567
           − 5 104   − 1 375   − 3 253

g)   44 293   h)   86 477   i)   37 516
         − 13 701   − 16 216   − 21 413

D.   **Rewrite each question in columns and find the differences.**

a) $968 - 343 =$ b) $865 - 432 =$

c) $7\ 482 - 5\ 061 =$ d) $11\ 589 - 5\ 326 =$

e) $97\ 383 - 42\ 362 =$ f) $109\ 861 - 58\ 240 =$

E.   **Borrow from the number in the shaded box.**

a)

	ten thousands	thousands	hundreds	tens	ones
392					

b)

	ten thousands	thousands	hundreds	tens	ones
821					

c)

	ten thousands	thousands	hundreds	tens	ones
6 739					

d)

	ten thousands	thousands	hundreds	tens	ones
4 528					

e)

	ten thousands	thousands	hundreds	tens	ones
24 986					

f)

	ten thousands	thousands	hundreds	tens	ones
47 182					

F.   Borrow from the number in the shaded box.

a)

	ten thousands	thousands	hundreds	tens	ones
302					

b)

	ten thousands	thousands	hundreds	tens	ones
706					

c)

	ten thousands	thousands	hundreds	tens	ones
7 019					

d)

	ten thousands	thousands	hundreds	tens	ones
5 034					

e)

	ten thousands	thousands	hundreds	tens	ones
40 154					

f)

	ten thousands	thousands	hundreds	tens	ones
20 428					

g)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
904 539						

h)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
406 217						

G. Find the differences.

a)   54
     − 5

b)   63
     − 6

c)   82
     − 9

d)   25
     − 17

e)   92
     − 53

f)   58
     − 39

H. Find the differences.

a)   172
     − 16

b)   263
     − 59

c)   974
     − 65

d)   629
     − 349

e)   956
     − 392

f)   754
     − 636

I.   Find the differences. Check your answers using addition.

a)   83   *Check:*   b)   639   *Check:*
            − 15   − 484

c)   1 041   *Check:*   d)   7 317   *Check:*
            − 436   − 5 293

e)   45 398   *Check:*   f)   84 902   *Check:*
           − 2 737   − 24 290

J.   Find the differences.

a)   251   b)   286   c)   256
            − 84   − 98   − 79

d)

$$\begin{array}{r} 427 \\ -\ 328 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 970 \\ -\ 476 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 534 \\ -\ 269 \\ \hline \end{array}$$

K. Find the differences.

a)

$$\begin{array}{r} 3\ 614 \\ -\ 923 \\ \hline \end{array}$$

b)

$$\begin{array}{r} 5\ 132 \\ -\ 747 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 1\ 263 \\ -\ 486 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 6\ 163 \\ -\ 2\ 178 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 6\ 311 \\ -\ 3\ 784 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 7\ 234 \\ -\ 2\ 659 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 71\ 236 \\ -\ 7\ 852 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 34\ 529 \\ -\ 4\ 868 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 57\ 389 \\ -\ 3\ 894 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 91\ 821 \\ -\ 76\ 953 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 81\ 153 \\ -\ 43\ 569 \\ \hline \end{array}$$

m)

$$\begin{array}{r} 90\ 763 \\ -\ 34\ 287 \\ \hline \end{array}$$

L. **Find the differences.**

a)
$$\begin{array}{r} 403 \\ -\ 16 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 800 \\ -\ 75 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 600 \\ -\ 124 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 804 \\ -\ 326 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 901 \\ -\ 258 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 8\ 035 \\ -\ 652 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 3\ 600 \\ -\ 1\ 135 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7\ 065 \\ -\ 6\ 130 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 40\ 862 \\ -\ 3\ 978 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 50\ 126 \\ -\ 9\ 238 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 80\ 965 \\ -\ 67\ 836 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 30\ 642 \\ -\ 19\ 637 \\ \hline \end{array}$$

M. **Rewrite each question in columns and find the difference.**

a) $845 - 659 =$

b) $1\ 920 - 731 =$

c) $6\ 927 - 2\ 765\ =$ d) $19\ 053 - 8\ 954\ =$

e) $73\ 050 - 36\ 174\ =$ f) $86\ 295 - 46\ 049\ =$

N.   Estimate the differences. Round the numbers before you subtract.

a)   357   b)   3 546
         $-\ 129$ $-\ 866$

c)   2 765   d)   6 263
         $-\ 249$ $-\ 2\ 118$

e)   63 947   f)   47 296
         $-\ 5\ 689$ $-\ 21\ 592$

O. Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers if the numbers have 2 digits or more.

a) Last Friday, 1 259 students and 339 parents went to the hockey game. How many students and parents were at the game?

b) The Laerdal Tunnel in Norway is the longest road tunnel in the world. It is 24 510 metres long. The Zhongnanshan Tunnel in China is the second longest road tunnel in the world. It is 18 040 metres long. How much longer is the Laerdal Tunnel?

c) Li Chiu bought school clothes for her children. She spent $46 at the department store, $40 at the shoe store and $78 at the discount store. How much did Li spend altogether?

d) A truck weighed 4 267 kilograms when loaded with dirt. When the truck is empty it weighs 2 189 kilograms. How much did the dirt weigh?

P. **Find the sum or difference for each question.**

a) $776 + 634 - 478 =$ b) $3\ 714 - 819 + 496 =$

c) $7\ 413 - 249 + 382 =$ d) $6\ 415 + 5\ 829 - 1\ 756 =$

Q.   **Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers if the numbers have 2 digits or more. Show all your work.**

a) Two weeks ago, Van opened a new bank account and deposited $295. He paid $146 for his gas bill. Van then deposited $1 632 in his account. How much money is in his account?

b) Michel has 1 532 metres of fencing. He needs to fence his garden which measures 253 metres long and 187 metres wide. Does he have enough fencing? How much fencing will be left over?

Answers to Unit 3 Review

A.

a) 34   b) 34   c) 23   d) 53   e) 24   f) 41

B.

a) 572   b) 671   c) 121   d) 275   e) 36   f) 415

C.

a) 724   b) 4 053   c) 4 383   d) 2 832   e) 61 214   f) 51 314

g) 31 192   h) 70 261   i) 16 103

D.

a) 625   b) 433   c) 2 421   d) 6 263   e) 55 021   f) 51 621

E.

a)

	ten thousands	thousands	hundreds	tens	ones
392			3	9	2
			3	*8*	*12*

b)

	ten thousands	thousands	hundreds	tens	ones
821			8	2	1
			8	*1*	*11*

c)

	ten thousands	thousands	hundreds	tens	ones
6 739		6	7	3	9
		6	*6*	*13*	9

d)

	ten thousands	thousands	hundreds	tens	ones
4 528		4	5	2	8
		4	*4*	*12*	8

e)

	ten thousands	thousands	hundreds	tens	ones
24 986	2	4	9	8	6
	2	*3*	*19*	8	6

f)

	ten thousands	thousands	hundreds	tens	ones
47 182	4	7	1	8	2
	4	*6*	*11*	8	2

F.

a)

	ten thousands	thousands	hundreds	tens	ones
302			3	0	2
			2	*10*	2
			2	*9*	*12*

b)

	ten thousands	thousands	hundreds	tens	ones
706			7	0	6
			6	*10*	6
			6	*9*	*16*

c)

	ten thousands	thousands	hundreds	tens	ones
7 019		7	0	1	9
		6	*10*	1	9
		6	*9*	*11*	9

d)

	ten thousands	thousands	hundreds	tens	ones
5 034		5	0	3	4
		4	*10*	3	4
		4	*9*	*13*	4

e)

	ten thousands	thousands	hundreds	tens	ones
	3	*10*	1	5	4
	3	*9*	*11*	5	4

f)

	ten thousands	thousands	hundreds	tens	ones
20 428	2	0	4	2	8
	1	*10*	4	2	8
	1	*9*	*14*	2	8

g)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
904 539	9	0	4	5	3	9
	8	*10*	4	5	3	9
	8	*9*	*14*	5	3	9

h)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
406 217	4	0	6	2	1	7
	3	*10*	6	2	1	7
	3	*9*	*16*	2	1	7

G.
a) 49   b)   57   c) 73   d) 8   f) 39   h) 19

H.
a) 156   b)   204   c) 909   d) 280   e) 564   f) 118

I.
a) 68   b)   155   c) 605   d) 2 024   e) 42 661
f) 60 612

J.

a)   167   b)   188   c)   177   d)   99   e)   494   f)   265

K.

a)   2 691   b)   4 385   c)   777   d)   3 985   e)   2 527   f)   4 575

g)   63 384   h)   29 661   i)   53 495   j)   14 868   k)   37 584   l)   56 476

L.

a)   387   b)   725   c)   476   d)   478   e)   643   f)   7 383

g)   2 465   h)   935   i)   36 884   j)   40 888   k)   13 129   l)   11 005

M.

a)   186   b)   1 189   c)   4 162   d)   10 099   e)   36 876   f)   40 246

N.

a) $400 - 100 = 300$ b) $3\ 500 - 900 = 2\ 600$

c) $2\ 800 - 200 = 2\ 600$ d) $6\ 000 - 2\ 000 = 4\ 000$

e) $64\ 000 - 6\ 000 = 58\ 000$

f) $50\ 000 - 20\ 000 = 30\ 000$

O.

a)   1 598 students   b)   6 470 metres   c) $164

d)   2 078 kilograms

P.

a)   932   b)   3 391   c)   7 546   d)   10 488

Q.

a) $1 781   b)   Yes, 652 metres leftover

CONGRATULATIONS!!

Now you have finished Unit 3.

TEST TIME!

Ask your instructor for the Practice Test for this unit.
Once you've done the practice test,
you need to do the unit 3 test.
Again, ask your instructor for this.
Good luck!