

Rounding Numbers

Rules for rounding off are:

- If the digit after the one being rounded off is **less than 5** (i.e., 0, 1, 2, 3 or 4) we round **down**.
- If the digit after the one being rounded off is **5 or more** (i.e., 5, 6, 7, 8, 9) we round **up**.

Example 6

Round off the following to the nearest 10:

a 48 **b** 583 **c** 5705

a $48 \div 50$ {Round up, as 8 is greater than 5}

b $583 \div 580$ {Round down, as 3 is less than 5}

c $5705 \div 5710$ {Round up, halfway is always rounded up}

EXERCISE 2C

1 Round off to the nearest 10:

a 21

b 32

c 48

d 53

e 75

f 78

g 98

h 237

i 399

j 651

k 797

l 1015

m 4956

n 3094

o 9995

Example 7

Round off the following to the nearest 100:

a 87 **b** 452 **c** 37 239**a** $87 \div 100$ {Round up, as 8 is greater than 5}**b** $452 \div 500$ {Round up, for 5 or more}**c** $37\,239 \div 37\,200$ {Round down, as 3 is less than 5}**2** Round off to the nearest 100:

a 78	b 468	c 462	d 750
e 649	f 994	g 1359	h 2954
i 25 449	j 14 765	k 130 009	l 43 951

Example 8

Round off the following to the nearest 1000:

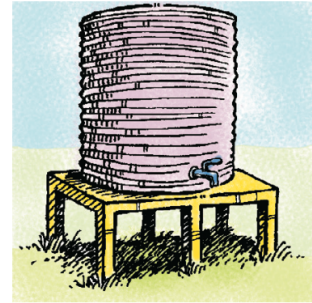
a 873 **b** 3500 **c** 33 407**a** $873 \div 1000$ {Round up, as 8 is greater than 5}**b** $3500 \div 4000$ {Round up, for 5 or more}**c** $33\,407 \div 33\,000$ {Round down, as 4 is less than 5}

3 Round off to the nearest 1000:

- | | | | |
|---------------|------------------|-----------------|------------------|
| a 748 | b 5490 | c 8700 | d 5500 |
| e 9990 | f 9499 | g 12 097 | h 43 743 |
| i 6543 | j 123 456 | k 43 457 | l 570 846 |

4 Round off to the accuracy given:

- a** \$45 387 (to the nearest \$1000)
- b** 328 kg (to the nearest ten kg)
- c** a weekly wage of \$485 (to the nearest \$100)
- d** a distance of 4753 km (to the nearest 100 km)
- e** the annual amount of water used in a household was 362 498 litres (to the nearest kilolitre)
- f** the profit of a company was \$487 374 (to nearest \$10 000)
- g** the population of a town is 37 495 (to nearest one thousand)
- h** the population of a city is 637 952 (to nearest hundred thousand)
- i** the number of times the average heart will beat in one year is 35 765 280 times (to nearest million)
- j** a year's loss by a large mining company was \$1 517 493 826 (to nearest billion).



ADDITION AND SUBTRACTION

Example 9

Find: $32 + 427 + 3274$

We rewrite in columns where we can add the units digits, the 10's digits, etc.

$$\begin{array}{r} 32 \\ 427 \\ + 3274 \\ \hline 11 \\ \hline 3733 \end{array}$$

EXERCISE 2D.1

1 Do these additions:

a	$\begin{array}{r} 32 \\ + 75 \\ \hline \end{array}$	b	$\begin{array}{r} 392 \\ + 415 \\ \hline \end{array}$	c	$\begin{array}{r} 1917 \\ + 2078 \\ \hline \end{array}$	d	$\begin{array}{r} 217 \\ 106 \\ + 1274 \\ \hline \end{array}$
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2 Find these and check your answers using rounding to tidy numbers:

- | | | |
|--|--|---------------------------------|
| a $42 + 37$ | b $72 + 35$ | c $421 + 327$ |
| d $624 + 72$ | e $921 + 1234$ | f $6214 + 324 + 27$ |
| g $90 + 724$ | h $32 + 627 + 4296$ | i $912 + 6 + 427 + 3274$ |
| j $9214 + 32762 + 416 + 91 + 7$ | k wha rau toru tekau + whitu tekau ma iwa | |

Example 10Find: **a** $62 - 34$ **b** $207 - 128$ **c** $4200 - 326$

$$\begin{array}{r} \text{a} \quad \overset{5}{6} \overset{12}{2} \\ - \quad 34 \\ \hline 28 \end{array}$$

$$\begin{array}{r} \text{b} \quad \overset{1}{2} \overset{9}{0} \overset{17}{7} \\ - \quad 128 \\ \hline 79 \end{array}$$

$$\begin{array}{r} \text{c} \quad \overset{3}{4} \overset{11}{2} \overset{9}{0} \overset{10}{0} \\ - \quad 326 \\ \hline 3874 \end{array}$$

3 Do these subtractions:

$$\begin{array}{r} \text{a} \quad 35 \\ - 12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b} \quad 97 \\ - 15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c} \quad 42 \\ - 17 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d} \quad 63 \\ - 19 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e} \quad 247 \\ - 138 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f} \quad 602 \\ - 149 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g} \quad 713 \\ - 48 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h} \quad 6005 \\ - 2349 \\ \hline \end{array}$$

4 Find:

a $47 - 13$

b $62 - 14$

c $33 - 27$

d $40 - 18$

e $214 - 32$

f $623 - 147$

g $503 - 127$

h $5003 - 1236$

i $12\,000 - 3245$

j rima tekau ma ono – rua tekau ma iwa

WORD PROBLEMS

We will now look at solving some **word problems** where the solution depends on **addition** or **subtraction**. A number sentence is needed in order to answer the problem.

Example 11

Hemi filled a wheelbarrow with 5 kg of potatoes, 3 kg of carrots, 7 kg of kumara and 25 kg of pumpkin. What was the total weight of Hemi's vegetables?

$$\begin{aligned} \text{Total weight} \\ &= 5 + 3 + 7 + 25 \\ &= 40 \text{ kg} \end{aligned}$$



- 5**
- a** Jack bought 4 separate lengths of timber. Their lengths were as follows: 5 m, 1 m, 7 m, and 9 m. If all four lengths of timber were put end to end how long would the total length be?
 - b** Jenny bought a play station for \$255. She also purchased another controller for \$50, a play station game for \$95 and a bag to store these in for \$32. How much did she pay altogether?
 - c** Keri needed to lose some weight to be chosen in a light weight rowing team. She weighed ono tekau kg but needed to weigh rima tekau ma wha kg. How much weight did she need to lose?
 - d** Miki had 65 minutes of time left on her prepaid cellphone. She made a 10 minute call to Asura, a 7 minute call to her mother and a 26 minute call to her boyfriend Michael. How many minutes did she have left after making these calls?
 - e** Rima went on an overseas trip that required three plane flights. The first flight was 2142 km long, the next one was 732 km long and the third one was 1049 km long. How long was her flight in total?

EXERCISE 2C

- 1 a 20 b 30 c 50 d 50 e 80 f 80
g 100 h 240 i 400 j 650 k 800
l 1020 m 4960 n 3090 o 10 000
- 2 a 100 b 500 c 500 d 800 e 600
f 1000 g 1400 h 3000 i 25 400
j 14 800 k 130 000 l 44 000
- 3 a 1000 b 5000 c 9000 d 6000
e 10 000 f 9000 g 12 000 h 44 000
i 7000 j 123 000 k 43 000 l 571 000
- 4 a \$45 000 b 330 kg c \$500 d 4800 km
e 362 kL f \$490 000 g 37 000
h 600 000 i 36 000 000 j \$2 000 000 000

EXERCISE 2D.1

- 1 a 107 b 807 c 3995 d 1597
- 2 a 79 b 107 c 748 d 696 e 2155
f 6565 g 364 h 4955 i 4219 j 42490
k rima rau mā iwa
- 3 a 23 b 82 c 25 d 44 e 109 f 453
g 665 h 3656
- 4 a 34 b 48 c 6 d 22 e 182 f 476
g 376 h 3767 i 8755 j rua tekau mā whitu
- 5 a 22 m b \$432 c ono kg d 22 e 3923 km