

Example 7

Round off the following to the nearest 10:

- a** 38 **b** 483 **c** 8605



- a** 38 is approximately 40 {Round up, as 8 is greater than 5}
b 483 is approximately 480 {Round down as 3 is less than 5}
c 8605 is approximately 8610 {Round up, halfway is rounded up}

Go first to the digit after the one being rounded off. That is, the first one to the right.



EXERCISE 2F

1 Round off to the nearest 10:

- | | | | |
|---------------|---------------|-----------------|-----------------|
| a 23 | b 65 | c 68 | d 97 |
| e 347 | f 561 | g 409 | h 598 |
| i 3015 | j 2856 | k 3094 | l 8885 |
| m 2895 | n 9995 | o 30 905 | p 49 895 |

Example 8

Round off the following to the nearest 100:

- a** 89 **b** 152 **c** 19 439



- a** 89 is approximately 100 {Round up as 8 is greater than 5}
b 152 is approximately 200 {Round up for 5 or more}
c 19 439 is approximately 19 400 {Round down, as 3 is less than 5}

2 Round off to the nearest 100:

- | | | | |
|--------------|-----------------|-----------------|-----------------|
| a 81 | b 671 | c 617 | d 850 |
| e 349 | f 982 | g 2111 | h 3949 |
| i 999 | j 13 484 | k 99 199 | l 10 074 |

Example 9

DEMO



Round off the following to the nearest 1000:

a 932 **b** 4500 **c** 44 482

a 932 is approximately 1000 {Round up as 9 is greater than 5}

b 4500 is approximately 5000 {Round up for 5 or more}

c 44 482 is approximately 44 000 {Round down, as 4 is less than 5}

3 Round off to the nearest 1000:

a 834 **b** 695 **c** 1089 **d** 5485
e 7800 **f** 6500 **g** 9990 **h** 9399
i 13 095 **j** 7543 **k** 246 088 **l** 499 359

5 Round off to the accuracy given:

- a** \$187.45 (to nearest \$10)
- b** \$18 745 (to nearest \$1000)
- c** 375 km (to nearest 10 km)
- d** \$785 (to nearest \$100)
- e** the population of a town is 29 295 (to nearest one thousand)
- f** 995 cm (to nearest metre)
- g** 8945 litres (to nearest kilolitre)
- h** the cost of a house was \$274 950 (to nearest \$10 000)
- i** the number of sheep on a farm is 491 560 (nearest 100 000)

One kilolitre is one thousand litres.



Estimation

Example 16Estimate the product **a** 39×7 **b** 891×4

- a** Round off to the first digit then put zeros in the other places

$$\begin{array}{l} 39 \times 7 \text{ is approximately } 40 \times 7 \\ \text{which is approximately } 280 \end{array}$$

- b** Round off to the first figure then put zeros in other places

$$\begin{array}{l} 891 \times 4 \text{ is approximately } 900 \times 4 \\ \text{which is approximately } 3600 \end{array}$$

- 7** Estimate the following products:

a 19×8

b 31×7

c 28×4

d 52×6

e 87×5

f 92×3

g 39×9

h 88×8

i 54×7

j 36×9

k 94×5

l 67×3

- 8** Multiply the following. Use estimation to check that your answers are reasonable:

a
$$\begin{array}{r} 41 \\ \times 9 \\ \hline \end{array}$$

b
$$\begin{array}{r} 78 \\ \times 7 \\ \hline \end{array}$$

c
$$\begin{array}{r} 53 \\ \times 4 \\ \hline \end{array}$$

d
$$\begin{array}{r} 92 \\ \times 9 \\ \hline \end{array}$$

e
$$\begin{array}{r} 27 \\ \times 6 \\ \hline \end{array}$$

f
$$\begin{array}{r} 69 \\ \times 8 \\ \hline \end{array}$$

g
$$\begin{array}{r} 82 \\ \times 5 \\ \hline \end{array}$$

h
$$\begin{array}{r} 38 \\ \times 3 \\ \hline \end{array}$$

Example 17

Estimate the product 427×89

Round off the first digit then put zeros in the other places:

427×89 is approximately 400×90 {5 digits in the question}
is approximately 36 000 {5 digits in the answer}

The estimate tells us that the correct answer should have 5 digits in it.

The sum of the number of zeros is the number of zeros which should appear in the product, unless the product of the two digits ends in zero.

11 Estimate the following products using 1 figure approximations:

- | | | | | | | | |
|----------|------------------|----------|--------------------|----------|------------------|----------|------------------|
| a | 49×32 | b | 83×57 | c | 58×43 | d | 389×21 |
| e | 519×38 | f | 88×307 | g | 728×65 | h | 921×78 |
| i | 58975×8 | j | $31\,942 \times 6$ | k | 6412×37 | l | 29×7142 |

