

Decimals and Estimation

ANSWERS

No calculator | 30 minutes | Total marks: 30

Name _____ Class _____

1 Work out

(a) 0.4×0.07

Answer 0.028 (1) [1 mark]

(b) 3.2×1.5

$32 \times 15 = 480$ (1)

Answer 4.8 (1) [2 marks]

(c) $\frac{7.2}{0.3}$

$72 \div 3$ (1)

Answer 24 (1) [2 marks]

(d) $\frac{0.56}{0.08}$

Answer 7 (1) [1 mark]

2 (a) Round 0.04682 to 2 significant figures.

Answer 0.047 (1) [1 mark]

(b) Round 52 749 to 2 significant figures.

Answer 53 000 (1) [1 mark]

(c) Round 6.3951 to 2 decimal places.

Answer 6.40 (1) [1 mark]

3

Use approximations to estimate the value of $\frac{31.2 \times 5.87}{0.49}$

You **must** show your working.

$$\frac{30 \times 6}{0.5} \quad (1)$$

$$180 \div 0.5 \quad (1)$$

Answer 360 (1)

[3 marks]

4

$$37 \times 124 = 4588$$

Use this fact to write down the value of

(a) 3.7×12.4

Answer 45.88 (1)

[1 mark]

(b) $\frac{4588}{1.24}$

Answer 3700 (1)

[1 mark]

(c) 0.37×1240

Answer 458.8 (1)

[1 mark]

5

Here are four fractions.

$$\frac{3}{8} \quad \frac{5}{12} \quad \frac{7}{20} \quad \frac{2}{15}$$

Write down the two fractions that convert to recurring decimals.

the denominator has a prime factor other than 2 or 5

Answer $\frac{5}{12}$ (1) and $\frac{2}{15}$ (1)

[2 marks]

6

Convert the recurring decimal 0.454545... to a fraction.

Give your answer in its simplest form.

$$x = 0.4545... \text{ and } 100x = 45.4545... \quad (1)$$

$$99x = 45 \quad (1)$$

Answer $\frac{5}{11}$ (1)

[3 marks]

7

Prove algebraically that the recurring decimal $0.2777\dots$ is equal to $\frac{5}{18}$

$$x = 0.2777\dots, \quad 10x = 2.777\dots, \quad 100x = 27.777\dots \quad (1)$$

$$90x = 25 \quad (1)$$

$$x = \frac{25}{90} = \frac{5}{18} \quad (1)$$

[3 marks]

8

(a) The length, l cm, of a pen is 7.4 cm to 1 decimal place.

Complete the error interval for l .

$$\boxed{7.35} \leq l < \boxed{7.45} \quad (1)(1)$$

[2 marks]

(b) A number, n , is truncated to 1 decimal place. The result is 3.6

Complete the error interval for n .

$$\boxed{3.6} \leq n < \boxed{3.7} \quad (1)(1)$$

[2 marks]

9

A rectangle is 8 cm long and 5 cm wide.

Each length is given to the nearest centimetre.

(a) Work out the upper bound for the area of the rectangle.

$$8.5 \times 5.5 \text{ (1)}$$

Answer 46.75 (1) cm² [2 marks]

(b) Work out the lower bound for the perimeter of the rectangle.

Answer 24 (1) cm [1 mark]

Question	Topic	RAG
1	I can multiply and divide decimals	
2	I can round to significant figures and decimal places	
3	I can estimate by rounding	
4	I can use one calculation to find another	
5	I know which fractions give recurring decimals	
6	I can convert a recurring decimal to a fraction	
7	I can prove a recurring decimal is equal to a fraction	
8	I can write error intervals for rounding and truncation	
9	I can find bounds of a calculation	