

1 Multiplying decimals



- a) Work out $0.04 \times 0.3^2 \times 500$
b) $2.6 \times 3.5 = 9.1$. Use this to work out 0.026×350 and $9.1 \div 0.035$

a) $0.04 \times 0.09 = 0.0036, \times 500$
b) $0.026 \times 350 = 2.6 \times 3.5;$
 $9.1 \div 3.5 = 2.6$
a) 1.8 b) 9.1 and 260

2 Dividing decimals



- a) Work out $(0.6 \times 0.15) \div 0.0045$
b) n is positive and $\frac{n}{0.08} = \frac{0.18}{n}$. Find n .

a) $0.09 \div 0.0045 = 900 \div 45$
b) $n^2 = 0.18 \times 0.08 = 0.0144$
a) 20 b) $n = 0.12$

3 Rounding to decimal places



- a) Work out $2 \div 7$ to 3 decimal places.
b) Can a number be 4.3 to 1 decimal place and 4.24 to 2 decimal places? Explain your answer.

a) 0.2857...
b) 4.24 to 2 d.p.: $4.235 \leq x < 4.245$
a) 0.286 b) no, those are all 4.2

4 Significant figures



- a) Round 0.0009996 to 3 significant figures.
b) A number is 0.40 to 2 significant figures. What is the smallest it could be?

a) the 9s round up: 0.00100
b) halfway between 0.39 and 0.40
a) 0.00100 b) 0.395

5 Estimation



- a) Estimate the value of $\frac{6.12^2 \times 0.49}{0.0207}$
b) Estimate the value of $\frac{0.389 \times 61.2}{\sqrt{0.0386}}$

a) $\frac{36 \times 0.5}{0.02} = \frac{18}{0.02}$
b) $\frac{0.4 \times 60}{\sqrt{0.04}} = \frac{24}{0.2}$
a) 900 b) 120

Decimals and estimation

revision mat answers

6 Error intervals



- a) $p = 0.070$ to 2 significant figures. Write the error interval for p .
b) x truncated to 1 decimal place is 4.7 and x rounded to 1 decimal place is 4.8. Write the error interval for x .

a) $0.0695 \leq p < 0.0705$
b) $4.7 \leq x < 4.8$ and $4.75 \leq x < 4.85$
b) $4.75 \leq x < 4.8$

7 Limits of accuracy



- a) A length is 3.60 m to the nearest cm. Write down its bounds in millimetres.
b) Tiles are 30 cm wide, to the nearest cm. How many tiles do you need in a row to be sure it is at least 6 m long?

a) 3595 mm and 3605 mm
b) $600 \div 29.5 = 20.3...$
b) 21 tiles

8 Bounds in calculations



- a) $a = 7.2$ and $b = 3.8$, both to 1 decimal place. Find the upper bound of $a - b$.
b) $P = \frac{a+b}{c}$. $a = 12$ and $b = 8$ to the nearest whole number and $c = 0.5$ to 1 d.p. Find the upper bound of P exactly.

a) $7.25 - 3.75 = 3.5$
b) $\frac{12.5 + 8.5}{0.45} = \frac{2100}{45} = 46\frac{2}{3}$

9 Fractions and decimals



- a) Which of $\frac{7}{56}$ and $\frac{7}{48}$ is a terminating decimal? Explain.
b) $\frac{n}{140}$ is a terminating decimal and n is a whole number from 1 to 20. Find every value of n .

a) $\frac{7}{56} = \frac{1}{8}; 48 = 2^4 \times 3$
a) $\frac{7}{56}$ b) 7 and 14

10 Recurring decimals



- a) Use algebra to write $0.1\dot{3}\dot{6}$ as a fraction in its simplest form.
b) Work out $0.\dot{6} \times 0.\dot{2}\dot{7}$. Give your answer as a fraction in its simplest form.

a) $1000x - 10x = 136.36... - 1.36...$
 $990x = 135$
b) $\frac{2}{3} \times \frac{3}{11}$
a) $\frac{135}{990} = \frac{3}{22}$ b) $\frac{2}{11}$