Estimating calculations

ANSWERS

1

Estimate the value. Round each number to 1 significant figure first.

3.92×48.6

4×50

$= 200$

Answer 200

2

Estimate the value. Round each number to 1 significant figure first.

8.14×29.7

8×30

$= 240$

Answer 240

3

Estimate the value. Round each number to 1 significant figure first.

$693 \div 6.8$

$700 \div 7$

$= 100$

Answer 100

4

Estimate the value. Round each number to 1 significant figure first.

0.42×18.6

0.4×20

$= 8$

Answer 8

5

Estimate the value. Round each number to 1 significant figure first.

$$\frac{38.4 + 11.9}{4.7} \approx \frac{40 + 10}{5}$$

Top first $40 + 10 = 50$

$50 \div 5 = 10$

Answer 10

6

Estimate the value. Round each number to 1 significant figure first.

$38.9 \div 0.21$

$40 \div 0.2$

$= 200$

Answer 200

7

A café sells 29 sandwiches at £3.85 each. Estimate how much it takes.
Is your estimate an overestimate or an underestimate? Explain.

$29 \times £3.85 \approx 30 \times £4 = £120$

both numbers were rounded up

Answer £120, an overestimate

8

Mia estimates 8.6×0.27 as $9 \times 0 = 0$. Explain her mistake. Then give a better estimate.

0.27 to 1 s.f. is 0.3, not 0

$9 \times 0.3 = 2.7$

Answer about 2.7

Estimating calculations *further practice*

ANSWERS

9

Estimate the value of

$$7.21 \times 61.4 \div 2.13$$

7 × 60 ÷ 2

= 420 ÷ 2

Answer 210

10

Estimate the value of

$$\frac{4.8 \times 31.2}{2.9 + 2.2}$$

top: 5 × 30 = 150

bottom: 3 + 2 = 5

150 ÷ 5

Answer 30

11

Estimate the value of

$$\frac{52.3 + 9.8}{0.21}$$

(50 + 10) ÷ 0.2

60 ÷ 0.2 = 60 × 5

Answer 300

12

Sam estimates 3.4 × 2.3 as 3 × 2 = 6.
Is the exact answer bigger or smaller than 6? Explain how you know without working it out.

3.4 was rounded down to 3

2.3 was rounded down to 2

so 6 is an underestimate

Answer Bigger

13

One litre of paint covers 11.8 m^2.
Estimate how many litres are needed to paint 207 m^2.

207 ÷ 11.8

≈ 200 ÷ 10

Answer about 20 litres

14

A school orders 412 books at £5.85 each.
Estimate the total cost.

412 × £5.85

≈ 400 × £6

Answer £2400

15

The area of a circle is $\pi \times r^2$. Use $\pi = 3.14$ to estimate the area of a circle with radius 4.8 cm.

3×5^2

indices first: $5^2 = 25$

3 × 25

Answer 75 cm^2

16

Kai says 61.8 ÷ 0.52 is about 30, because dividing by 0.5 halves a number.
Is Kai right? Explain.

61.8 ÷ 0.52 ≈ 60 ÷ 0.5

÷ 0.5 doubles: 60 × 2 = 120

Answer No, it is about 120