Guide to: Estimation

maths Links

Explanation:

To **estimate** the answer to a calculation, round every number in the question to **1 significant figure (1 s.f.)** first (for example, 48.7 becomes 50, and 0.48 becomes 0.5). Always write down the rounded calculation clearly to guarantee the method mark.

Remember that dividing by **0.5** is the same as multiplying by **2**, and dividing by **0.2** is the same as multiplying by **5**. An estimate is an **overestimate** if the numbers were rounded up (or the denominator was rounded down), and an **underestimate** if rounded down.

Example 1: Work out an estimate for $\frac{58.4 \times 21.3}{0.48}$

Solution:

Round each value to **1 s.f.**:

58.4 → **60**, 21.3 → **20**, 0.48 → **0.5**

Estimate = $\frac{60 \times 20}{0.5} = \frac{1200}{0.5}$

1200 ÷ 0.5 = 1200 × 2 = 2400

Answer: 2400

Example 2: A ticket costs **£19.25**. Estimate the cost of **392 tickets**. Is your answer an overestimate or underestimate?

Solution:

Round to 1 s.f.: 19.25 → **20** and 392 → **400**

Estimate = 20 × 400 = **£8000**

Both numbers were rounded **up** (20 > 19.25 and 400 > 392).

Answer: £8000 (Overestimate)

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ken@mathslinks.co.uk