

1. Hannah, Gemma and Jo use their calculators to work out the value of
- $$\frac{28.78}{4.31 \times 0.47}$$

Hannah gets 142.07, Gemma gets 14.207 and Jo gets 3.138

Use approximations to show which one of them is correct. You *must* show your working.

2. p and q are prime numbers such that $pq^3 = 250$
Find the values of p and q .
Find the highest common factor of 250 and 80.

3. Tom, Sam and Matt are counting drum beats.
Tom hits a snare drum every 2 beats.
Sam hits a kettle drum every 5 beats.
Matt hits a bass drum every 8 beats.
Tom, Sam and Matt start by hitting their drums at the same time.
How many beats is it before Tom, Sam and Matt *next* hit their drums at the *same* time?

4. a Simplify
i $d^4 \times d^5$ ii $\frac{e^3}{e^7}$ iii $(3g^2h^3) \times (4gh^4)$
b Show that the following statement is wrong.
 $6(p - 2) = 6p + 4$

5. Here are six numbers written in standard form.
 2.6×10^5 1.75×10^6 5.84×10^0
 8.2×10^{-3} 3.5×10^{-1} 4.9×10^{-2}
a Write down the largest number.
b Write down the smallest number.
c Write 4.9×10^{-2} as an ordinary number.
d Work out $2.6 \times 10^5 \div 0.1$
Give your answer in standard form.

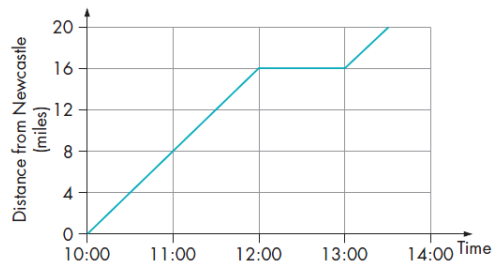
5. a Prove that $0.\dot{7}\dot{2} = \frac{8}{11}$
b Hence, or otherwise, express $0.3\dot{7}\dot{2}$ as a fraction.

6. Linda uses $\frac{3}{5}$ of a tin of paint to paint a fence panel.
What is the *least* number of tins she needs to paint 8 fence panels?

7. These are 150 kangaroos at a wildlife park.
a There are 66 female kangaroos.
What percentage is female?
b The number of kangaroos increases by 20% each year. Calculate the number of kangaroos in the wildlife park after 2 years.

8. a Expand and simplify $3(4x - 3) + 2(x + 5)$
b Expand $2x(x^2 - 3x)$
c Expand and simplify $(x + 2)(x - 1)$

9. Wayne cycles from Newcastle to Ashington, a distance of 20 miles. The diagram shows the distance-time graph of his journey.



- a Describe what is happening between 12:00 and 13:00.
b How far does Wayne travel in the first 2 hours of his journey?
c What is Wayne's average speed over the first 2 hours of his journey?
d Darren travels from Ashington to Newcastle by bus. He leaves Ashington at 10:00 and arrives in Newcastle at 11:00. Copy the diagram and draw a possible distance-time graph of Darren's journey on it.