

HOME EXERCISE 3

Set out carefully all appropriate working.

Do **not** use a calculator in questions 1, 2, 3 or 4.

Use a calculator in questions 5 and 6.

1. Evaluate: $6 \div 2\frac{5}{9}$ (1)

2. If $a = 5$, $b = -2$ and $c = 3$, evaluate:

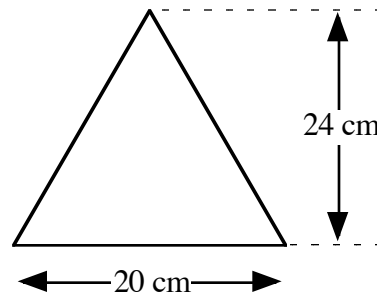
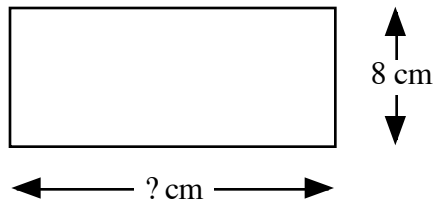
(a) $c \div a$ (b) $a + b$ (c) $b \div c$ (d) $a \div b$ (5)

3. It takes a particular machine 12 minutes to produce 48 items.

(a) Calculate the number of items the machine will produce in 9 minutes. (2)

(b) Calculate the time it takes for the machine to produce in 56 items. (2)

4. The triangle and the rectangle have the same area.



Calculate the length of the rectangle. (3)

5. A train can travel at a maximum speed of 120 miles per hour.

It left on a journey of 100 miles at 2 45 pm hoping to arrive at its destination for 3 30 pm.

Will the train arrive on time? (4)

Give reasons with your answer.

6. One **milligram** of hydrogen gas contains 2.987×10^{20} molecules.

Calculate the number of molecules in 4 **grams** of hydrogen gas. (3)

Write your answer in **scientific notation** and correct to **3 significant figures**.

Total 20 marks