

A plane travels at a speed of **213 miles per hour**.

(a) Work out an estimate for the number of seconds the plane takes to travel **1 mile**.

(b) Is your answer to part (a) an **underestimate** or an **overestimate**? Give a reason for your answer.

4 marks

It would take **120 minutes** to fill a swimming pool using water from **5 taps**.

(a) How many minutes will it take to fill the pool if only **3** of the taps are used?

(b) State **one assumption** you made in working out your answer to part (a).

3 marks

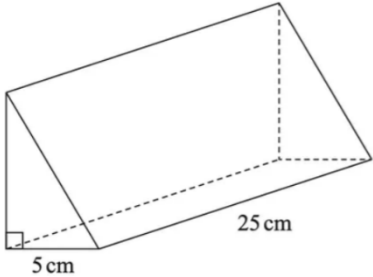
4 red bricks have a mean weight of **5 kg**.
 5 blue bricks have a mean weight of **9 kg**.
 1 green brick has a weight of **6 kg**.

Donna says,
 "The mean weight of the **10 bricks** is less than **7 kg**."

Is Donna correct?
 You must show how you get your answer.

3 marks

The diagram shows a prism.



The cross section of the prism is a right-angled triangle. The base of the triangle has length **5 cm**.

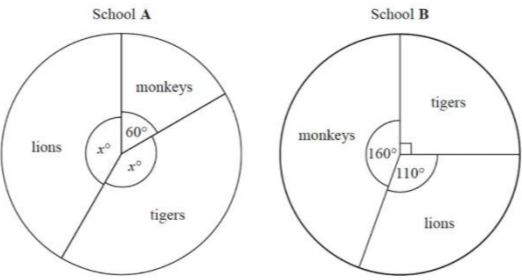
The prism has length **25 cm**.
 The prism has volume **750 cm³**.

Work out the height of the prism.

3 marks

The pie charts show information about the favourite animal of each student at school **A** and of each student at school **B**.

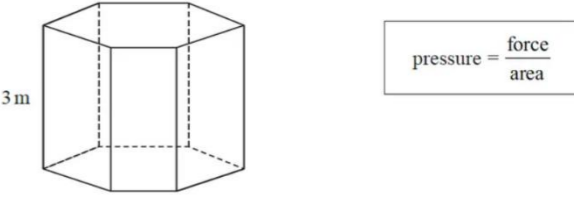
There are **480 students** at school **A** and **760 students** at school **B**.



Henry says, "The same number of students at each school have **tigers** as their favourite animal."
 Is Henry correct?
 You must show how you get your answer.

4 marks

The diagram shows a prism placed on a horizontal floor.



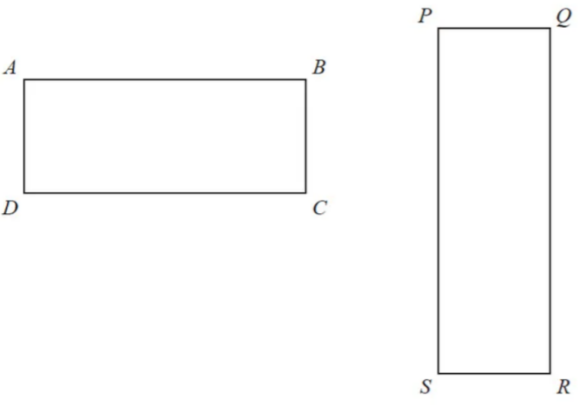
The prism has height **3 m**.
 The volume of the prism is **18 m³**.

The pressure on the floor due to the prism is **75 newtons/m²**.

Work out the **force** exerted by the prism on the floor.

3 marks

Here are two rectangles.



$QR = 10\text{ cm}$
 $BC = PQ$

The perimeter of $ABCD$ is **26 cm**.
 The area of $PQRS$ is **45 cm²**.

Find the length of AB .

4 marks

A delivery company has a total of **160** cars and vans.
 the number of cars : the number of vans = **3 : 7**

Each car and each van uses electricity or diesel or petrol.
 $\frac{1}{8}$ of the cars use electricity.
25% of the cars use diesel.
 The rest of the cars use petrol.

Work out the number of cars that use petrol.
 You must show all your working.

5 marks

Mano has three shelves of books.

There are x books on shelf **A**.
 There are $(3x+1)$ books on shelf **B**.
 There are $(2x-5)$ books on shelf **C**.

There is a total of **44** books on the three shelves.
 All the books have the same mass.

The books on shelf **B** have a total mass of **7500 g**.

Work out the total mass of the books on shelf **A**.

5 marks

