

## Mock Revision D [48]

1.

Expand and simplify  $(x + y)(x - y)$

(2)

(Total 2 marks)

2.

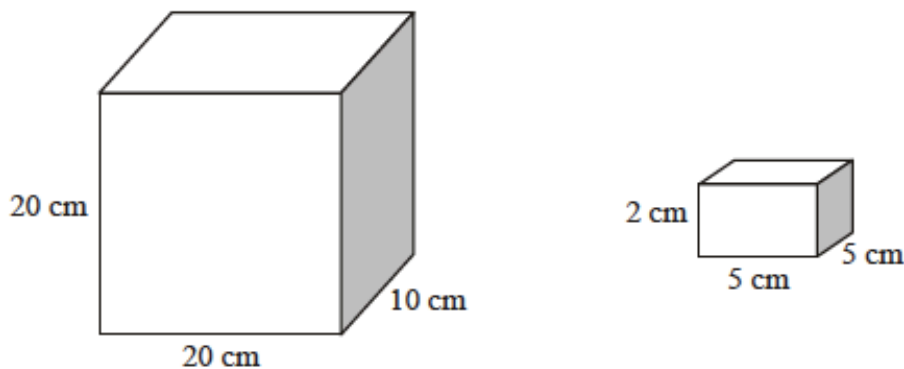
The diagram shows two boxes that are cuboids.

The larger box measures 20 cm by 10 cm by 20 cm.

It is partly filled with 70 smaller boxes each measuring 5 cm by 5 cm by 2 cm.

The smaller boxes are packed so that there are no gaps between them.

Not drawn accurately



How many more smaller boxes could be fitted in the larger box?

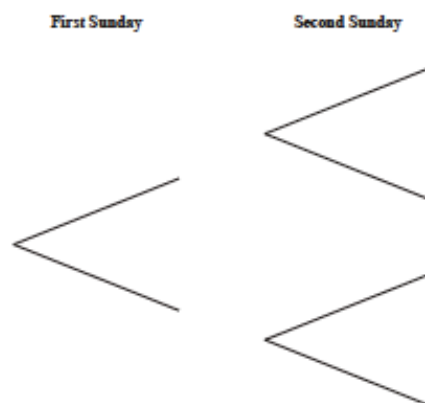
(Total 4 marks)

3.

Weather records are kept in a town called Snowville.

They show that in a typical April it snows on 20 days out of the 30 days in the month.

- (a) Copy and complete a fully labelled tree diagram showing the probabilities of it snowing or not snowing on the first two Sundays in April in Snowville.



(4)

- (b) Calculate the probability that it snows on only one of these two Sundays. You must show your working.

(3)

(Total 7 marks)

4.

Solve the following equations.

(a)  $2x + 5 = 3$

(2)

(b)  $4(y - 3) = 18$

(3)

(c)  $\frac{z+4}{2} = 11$

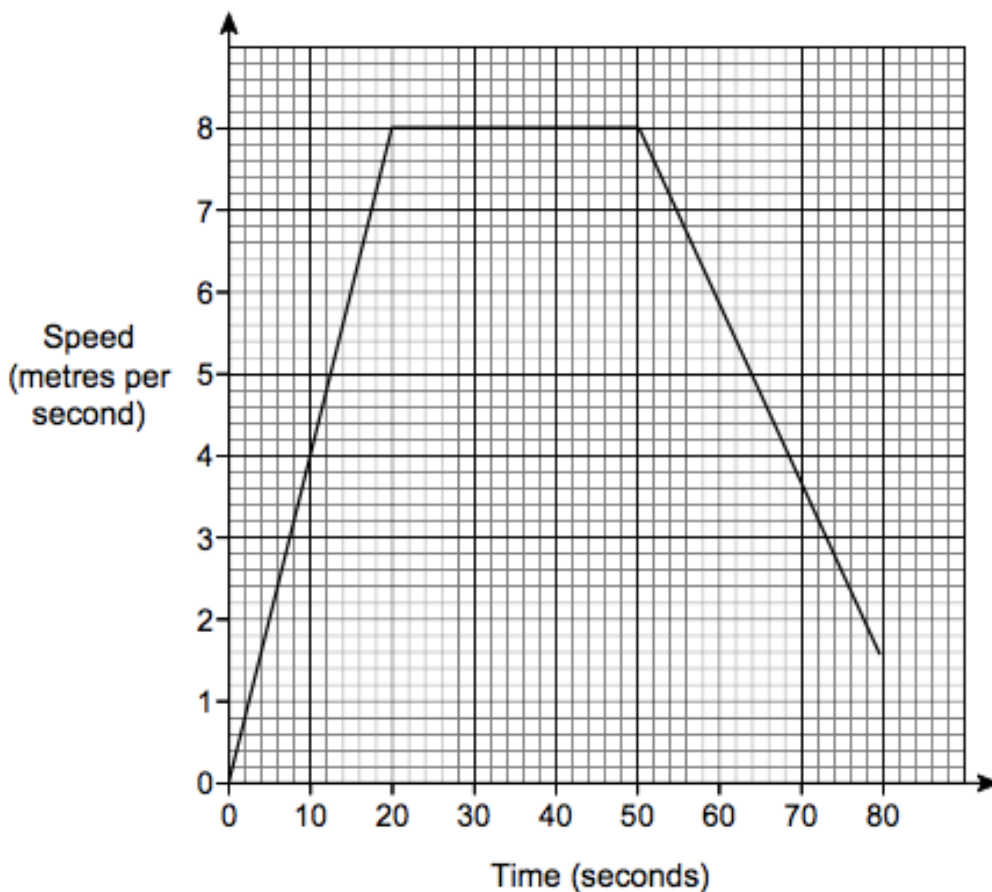
(2)

(Total 7 marks)

5.

Amina and Ben had a cycle race.

Here is Amina's speed-time graph from the start of the race.



The distance of the race was 400 metres.

Ben cycled the 400 metres in 64 seconds.

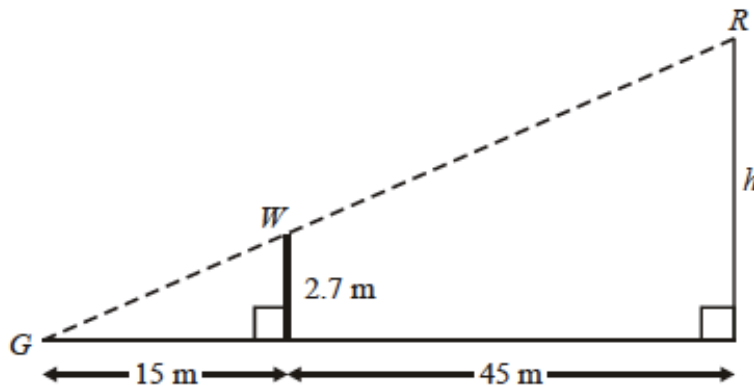
Who won the race?

You **must** show your working.

[4 marks]

6.

Gary,  $G$ , can just see the top of a radio mast,  $R$ , over a wall,  $W$ .  
Gary is 15 m from the wall.  
The wall is 45 m from the radio mast.  
The wall is 2.7 m high.



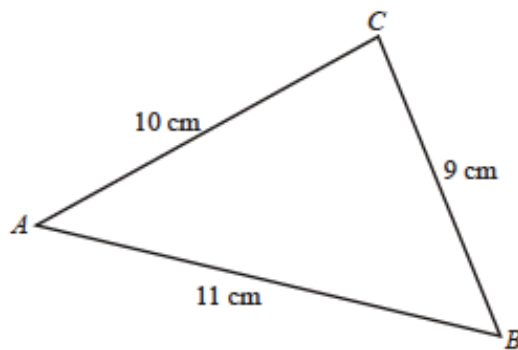
Not to scale

Calculate the height of the radio mast, marked  $h$  on the diagram.

(Total 3 marks)

7.

In triangle  $ABC$ ,  $AB = 11$  cm,  $BC = 9$  cm and  $CA = 10$  cm.



Not to scale

Find the area of triangle  $ABC$ .

(Total 5 marks)

8.

(a) Show that one solution of the equation  $x^3 + 2x - 5 = 0$  lies between 1 and 2.

[2]

(b) Find this solution correct to 1 decimal place.  
Show your working.

(Total 6 marks)

9.

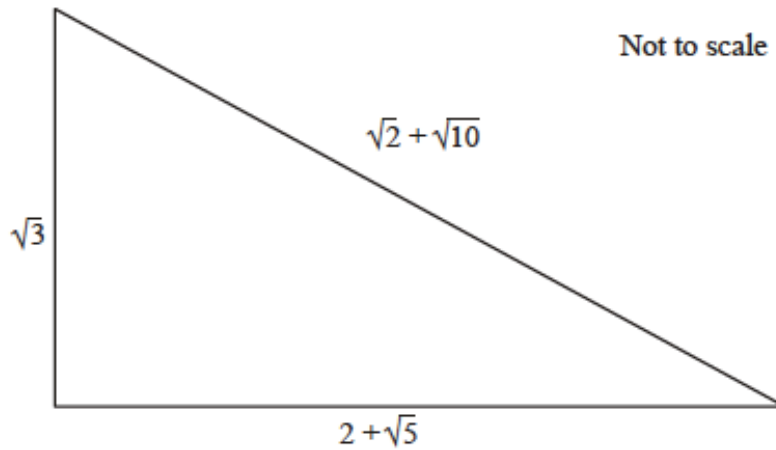
(a) (i) Show that  $\sqrt{20} = 2\sqrt{5}$

(1)

(ii) Expand and simplify  $(\sqrt{2} + \sqrt{10})^2$

(2)

(b) Is this triangle right-angled?



You **must** show your working.

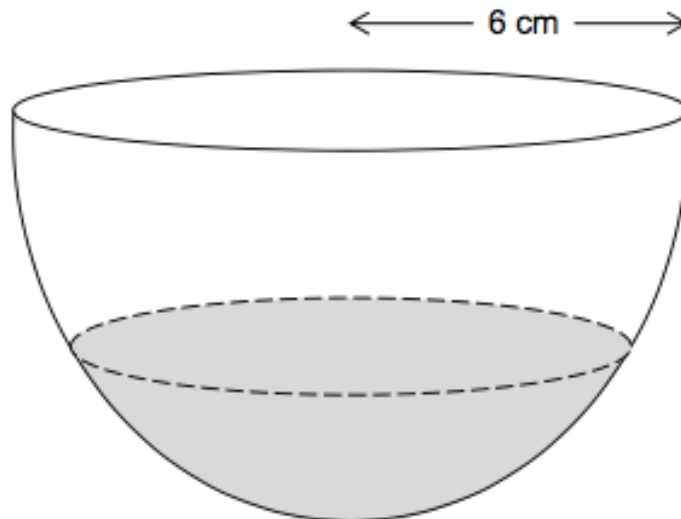
(3)

(Total 6 marks)

10.

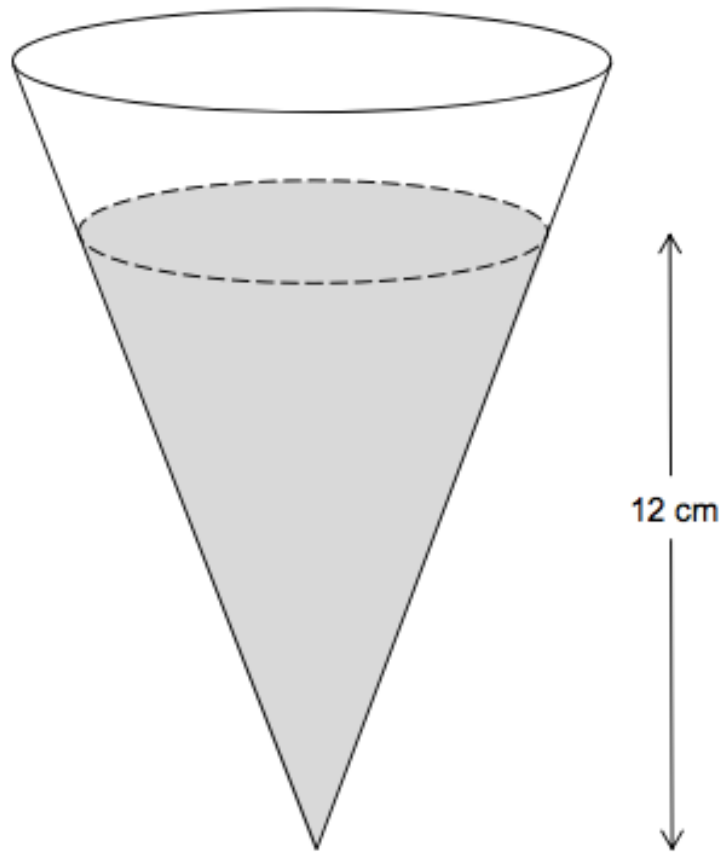
A bowl is a hemisphere with radius 6 cm

Water fills two-fifths of the volume of the bowl.



The water is poured into a hollow cone.

The depth of the water in the cone is 12 cm



Volume of a sphere =  $\frac{4}{3}\pi r^3$  where  $r$  is the radius.

Volume of a cone =  $\frac{1}{3}\pi r^2 h$  where  $r$  is the radius and  $h$  is the perpendicular height

Work out the radius of the surface of the water in the cone.

**[4 marks]**