Mock Grade 7

Maths Booklet 4

Paper 2H
Calculator

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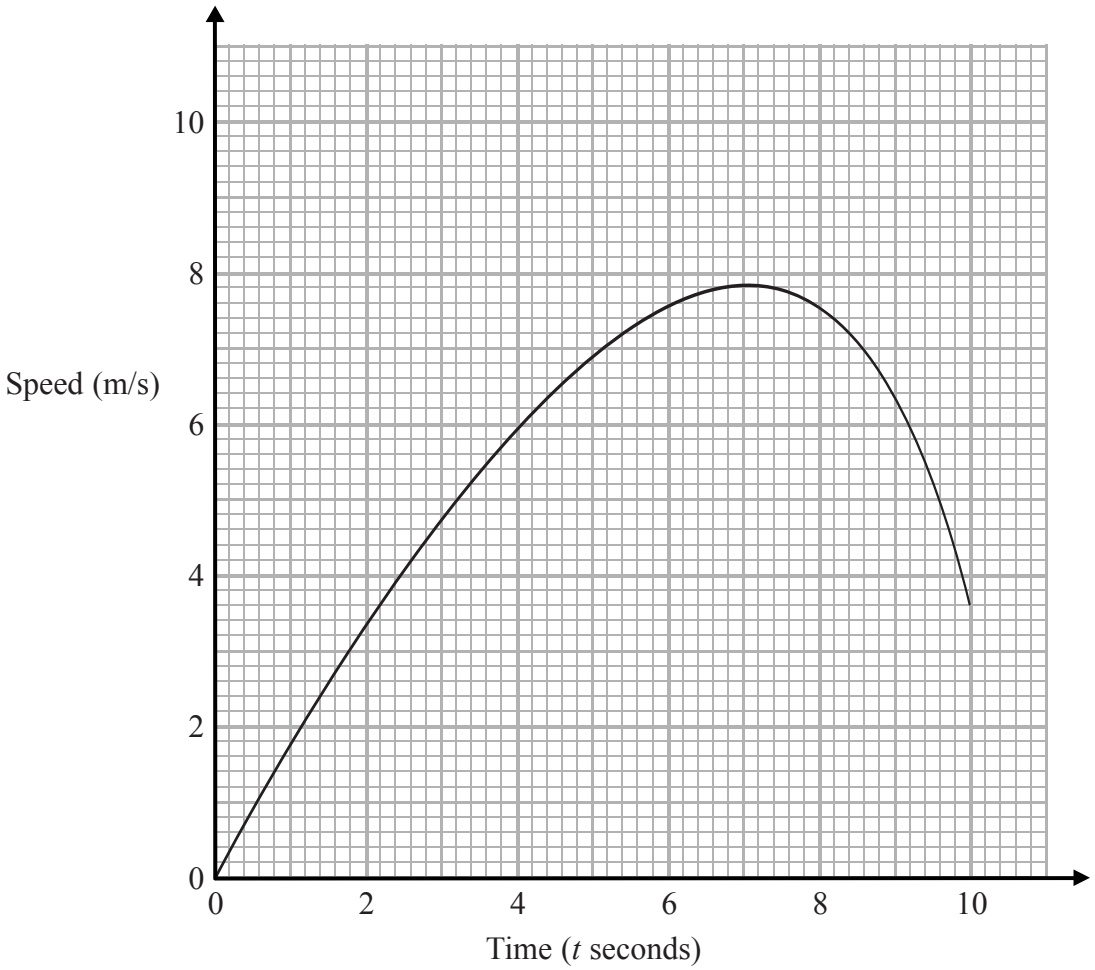
1 Karol runs in a race.

The graph shows her speed, in metres per second, t seconds after the start of the race.



(a) Calculate an estimate for the gradient of the graph when t =
You must show how you get your answer.

.....

(3)

(b) Describe fully what your answer to part (a) represents.

.....

.....

(2)

(c) Explain why your answer to part (a) is only an estimate.

.....

.....

(1)

(Total for Question 1 is 6 marks)

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2 (i) Find the value of $\sqrt[4]{8.1 \times 10^9}$

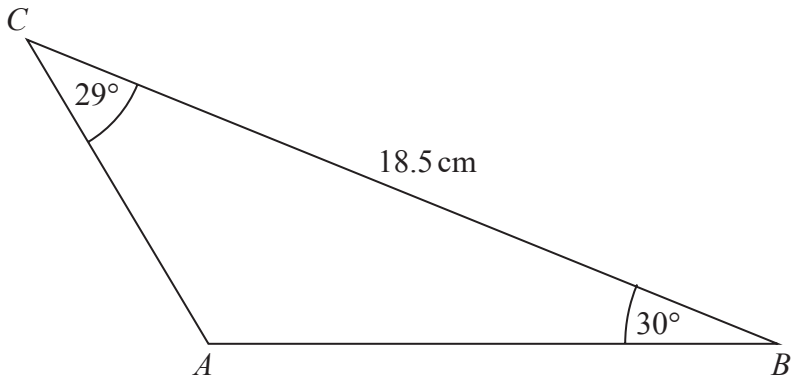
.....

(ii) Find the value of $16^{\frac{3}{5}}$
Give your answer correct to 1 decimal place.

.....

(Total for Question 2 is 2 marks)

3 Here is triangle *ABC*.

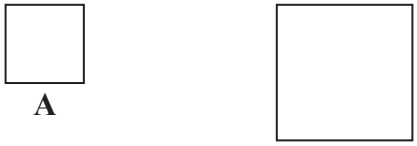


Work out the length of *AB*.
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 3 is 3 marks)

4 Here are two squares, **A** and **B**.



A

B

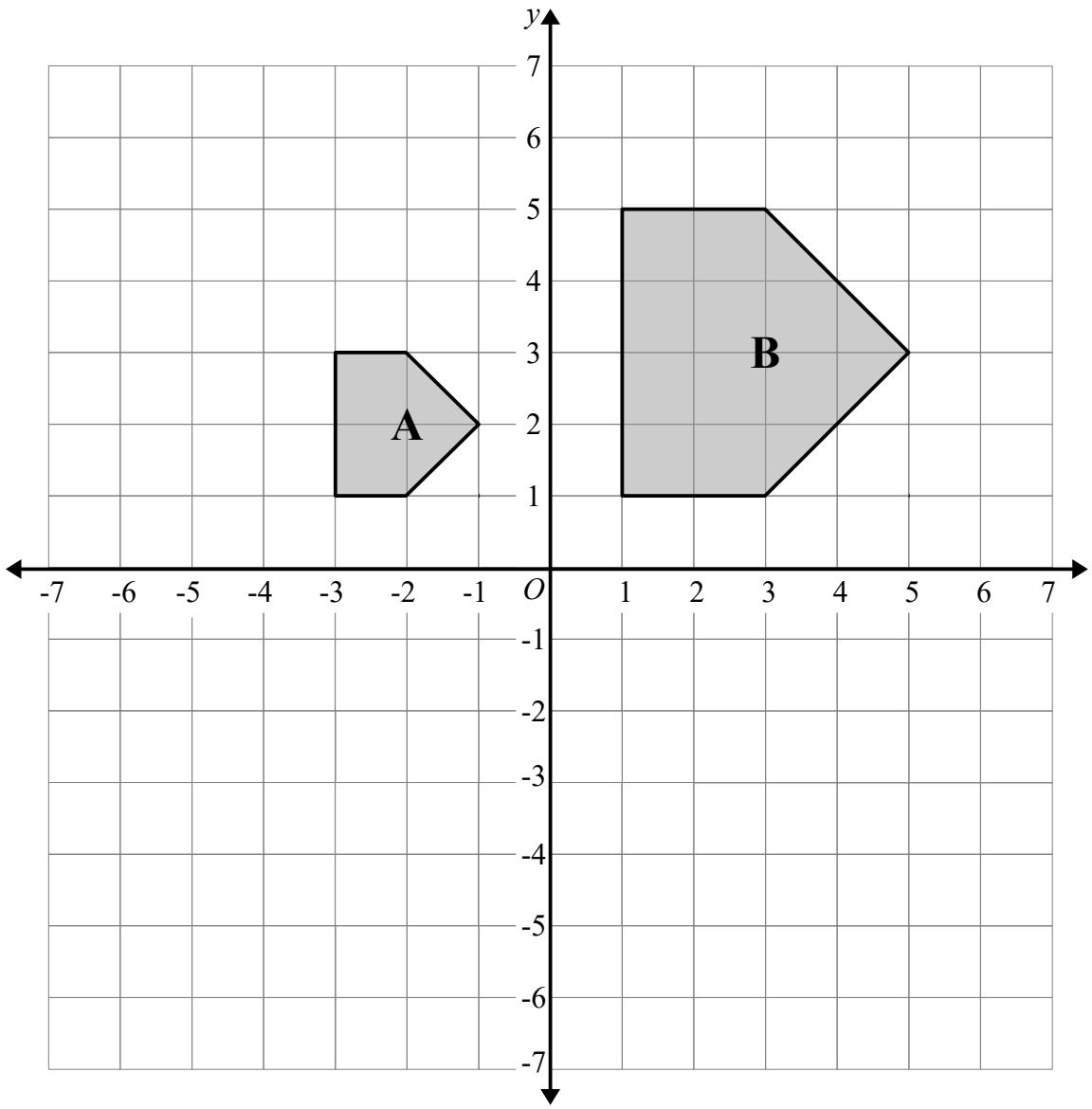
The length of each side of square **B** is 6 cm greater than the length of each side of square **A**.
The area of square **B** is 100 cm^2 greater than the area of square **A**.

Find the area of square **B**.
Give your answer correct to 3 significant figures.
You must show all your working.

..... cm^2

(Total for Question 4 is 4 marks)

5



Describe fully the single transformation that maps shape **A** onto shape **B**.

…….....……..……

…….....……..……

(Total for question 5 is 2 marks)

6 Here are the first five terms of a quadratic sequence.

0 9 26 51 84

Find an expression, in terms of n, for the nth term of this sequence.

.....

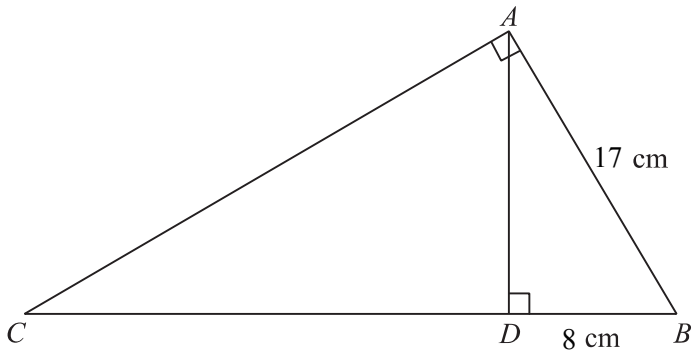
(Total for Question 6 is 3 marks)

7 Write down the coordinates of the turning point on the graph of $y = (x - 9)^2 + 2$

(..... , ...)

(Total for Question 7 is 1 mark)

8 *ABC* and *ABD* are two right-angled triangles.



Angle *BAC* = angle *ADB* = 90°

AB = 17 cm
DB = 8 cm

Work out the length of *CB*.

..... cm

(Total for Question 8 is 3 marks)