

**WRITING A FORMULA**

**OCR GCSE – Thursday 5 November 2020 – Paper 5 (Non-Calculator) Higher Tier**

1.

- 12 The price,  $\pounds P$ , of a car is  $\pounds 20\,000$  in 2019.  
The price is expected to decrease by 5% each year after 2019.

(a) Jasmine says

This means the price in 2021 is expected to be  $\pounds 18\,000$ .

She is incorrect.

Explain her error and work out the correct answer.

Her error is .....

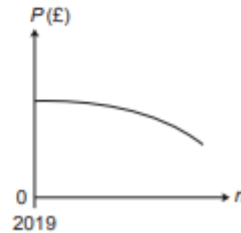
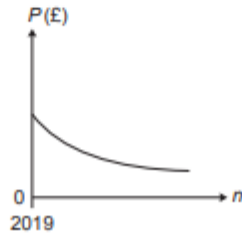
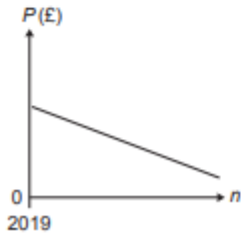
.....

The correct answer is  $\pounds$  ..... [4]

(b) (i) Write a formula for  $P$  in terms of  $n$ , where  $n$  is the number of years after 2019.

(b)(i)  $P =$  ..... [2]

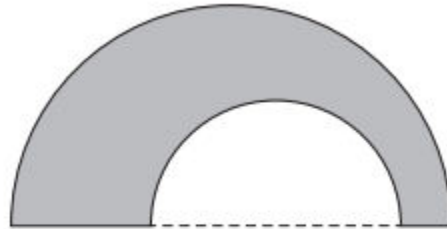
(ii) Circle the graph that best represents the price,  $\pounds P$ , of the car  $n$  years after 2019.



[1]

2.

- 13 The shape below is formed from two semicircles and a straight line.



Not to scale

The radius of the large semicircle is 8 cm.  
The radius of the small semicircle is  $t$  cm.

Find an expression, in terms of  $t$ , for the **exact perimeter** of the shaded shape.

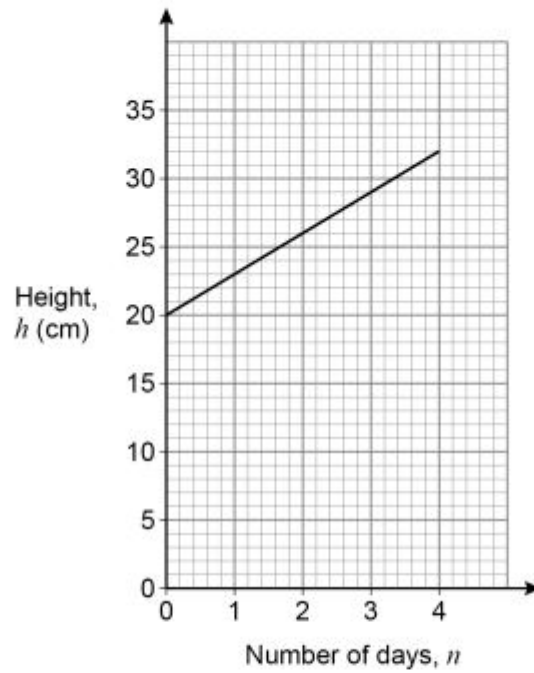
..... cm [3]

3.

17

Jim buys a plant of height 20 cm

The graph shows how the height of the plant changes during the next 4 days.



Work out a formula for  $h$  in terms of  $n$ .

[3 marks]

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Answer \_\_\_\_\_

AQA GCSE – Tuesday 21 May 2019 – Paper 1 (Non - Calculator) Higher Tier

4.

17 Toby is forming and solving equations.

17 (a)

The product of half of a number and three more than the number  
is the same as  
the square of the number

Toby uses  $y$  to represent the number.

Write an equation that Toby could form.

[2 marks]

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Answer \_\_\_\_\_

17 (b) Toby forms another equation.

$$x = \frac{9}{8x}$$

He wants to work out the values of  $x$ .

Here is his working.

$$x = \frac{9}{8x}$$
$$8x^2 = 9$$
$$8x = 3 \text{ or } 8x = -3$$
$$x = \frac{3}{8} \text{ or } x = -\frac{3}{8}$$

What error has he made in his working?

[1 mark]

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**AQA GCSE – Tuesday 12 June 2018 – Paper 3 (Calculator) Higher Tier**

5.

**15**

Amy has  $x$  beads.

Billy has three more beads than Amy.

Carly has four times as many beads as Billy.

Circle the expression for the number of beads that Carly has.

**[1 mark]**

$4x + 3$

$3x + 4$

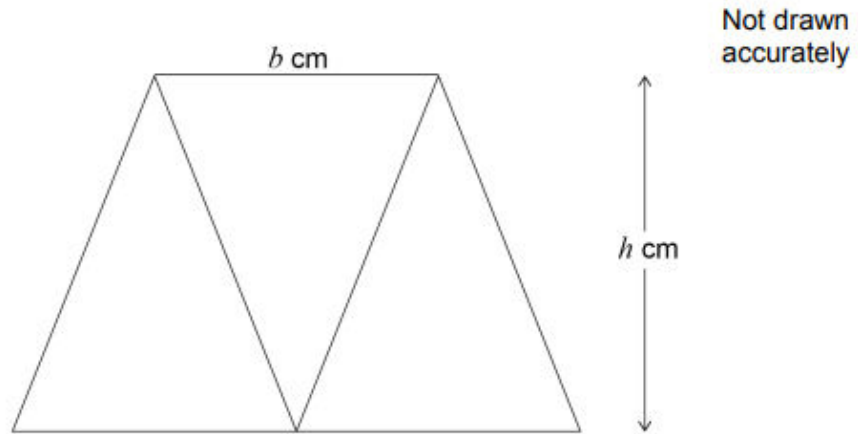
$4(x + 3)$

$x + 12$

**AQA GCSE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier**

6.

- 10 Three identical isosceles triangles are joined to make this trapezium.  
Each triangle has base  $b$  cm and perpendicular height  $h$  cm



- 10 (a) Work out an expression, in terms of  $b$  and  $h$ , for the area of the trapezium.  
Give your answer in its simplest form.

[2 marks]

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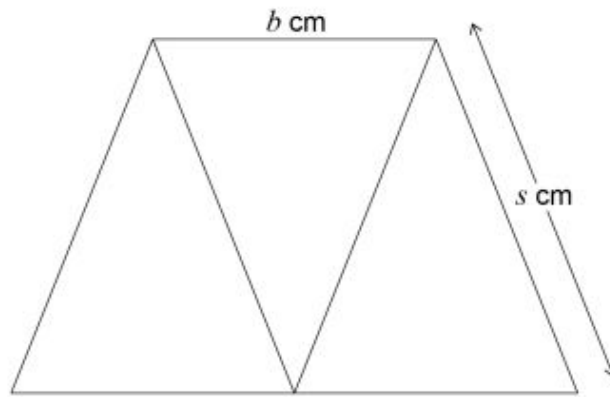
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Answer \_\_\_\_\_  $\text{cm}^2$

10 (b) This diagram shows the same trapezium.



Not drawn accurately

$$b : s = 2 : 3$$

Work out an expression, in terms of  $b$ , for the perimeter of the trapezium.

**[2 marks]**

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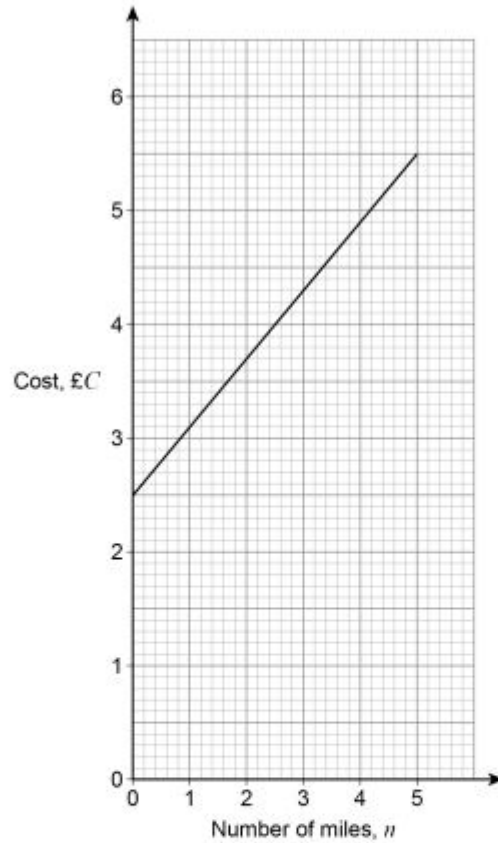
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Answer \_\_\_\_\_ cm

AQA GCSE – Thursday 8 June 2017 – Paper 2 (Calculator) Higher Tier

7.

14 The graph shows the cost of some taxi journeys.



Work out a formula for  $C$  in terms of  $n$ .

[3 marks]

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Answer \_\_\_\_\_



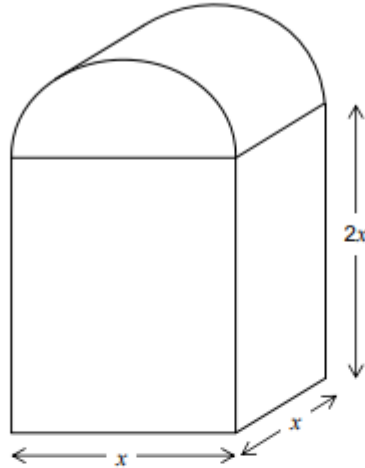
AQA GCSE – Sample Paper 1 (Non - Calculator) Higher Tier

8.

18 In this question all dimensions are in centimetres.

A solid has uniform cross section.

The cross section is a rectangle and a semicircle joined together.



Work out an expression, in  $\text{cm}^3$ , for the **total** volume of the solid.

Write your expression in the form  $ax^3 + \frac{1}{b}\pi x^3$  where  $a$  and  $b$  are integers.

[4 marks]

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Answer \_\_\_\_\_  $\text{cm}^3$