

REIGATE GRAMMAR SCHOOL

13+ Entrance Examination 2018 MATHEMATICS

Paper 2

Calculator Paper

Time Allowed: 35 Minutes

Name:

- Calculators **ARE** allowed.
- Work through the paper carefully.
- Do not spend too much time on any single question.
- Show any working clearly in the spaces provided – marks may be lost if there is not enough working.
- **You do not have to finish everything.**

Total Marks Available = 48

Page	2	3	4	5	6	7	8	9	10	11	Total
Marks											
Out of	5	7	5	6	6	5	5	4	2	3	48

I.	Holly purchases a car in 2018 for £15 000. It is estimated that the car loses 3.5% of its value every year. (a) How much will Holly's car be worth 1 year later in 2019 (to the nearest pound)? (b) How much will Holly's car be worth in 2030 (to the nearest pound)? 	[2] [3]
----	---	-----------------------

2.

(a) Find d when $a = 10, b = 41$ and $c = 4$

Given that $d = \sqrt{b^2 - 4ac}$

..... [3]

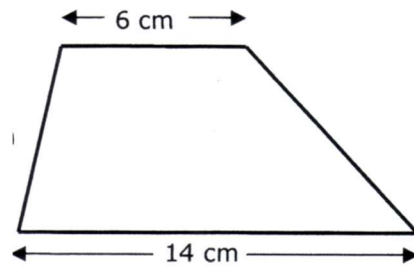
(b) Find c when $a = 5, b = -6$ and $d = 4$

Given that $d = \sqrt{b^2 - 4ac}$

..... [4]

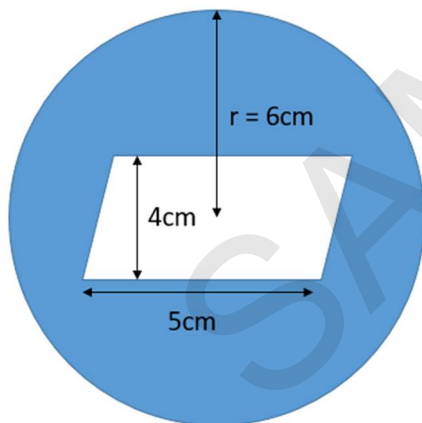
3.

(a) The following shape has an area of 70cm^2 . Find the height of this shape.



..... cm [2]

(b) A circle with radius 6cm has a parallelogram of base 5cm and height 4cm cut out and removed. Calculate the area of the **shaded region left behind**, rounding your answer to 1 decimal place.



..... cm^2 [3]

4. Solve the following equations. Simplify your answers fully.

(a) $3y + 5 = -2y + 1$

..... [3]

(b) $3(4x - 3) = 2 - (6x + 1)$

..... [3]

$$(c) \frac{3x}{4} - \frac{5x}{3} = \frac{1}{2}$$

$$(d) \frac{3x+2}{3} = \frac{2x}{5}$$

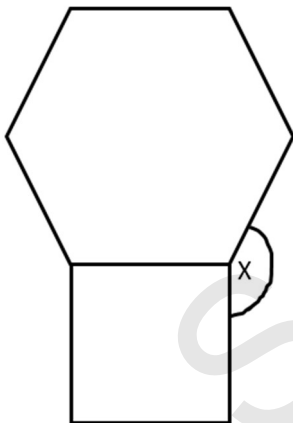
[3]

[3]

(e) $20 = \frac{4}{x-2}$

[2]

5. This shape is made up of one square and one regular hexagon.
What is the size of the missing angle in this diagram?

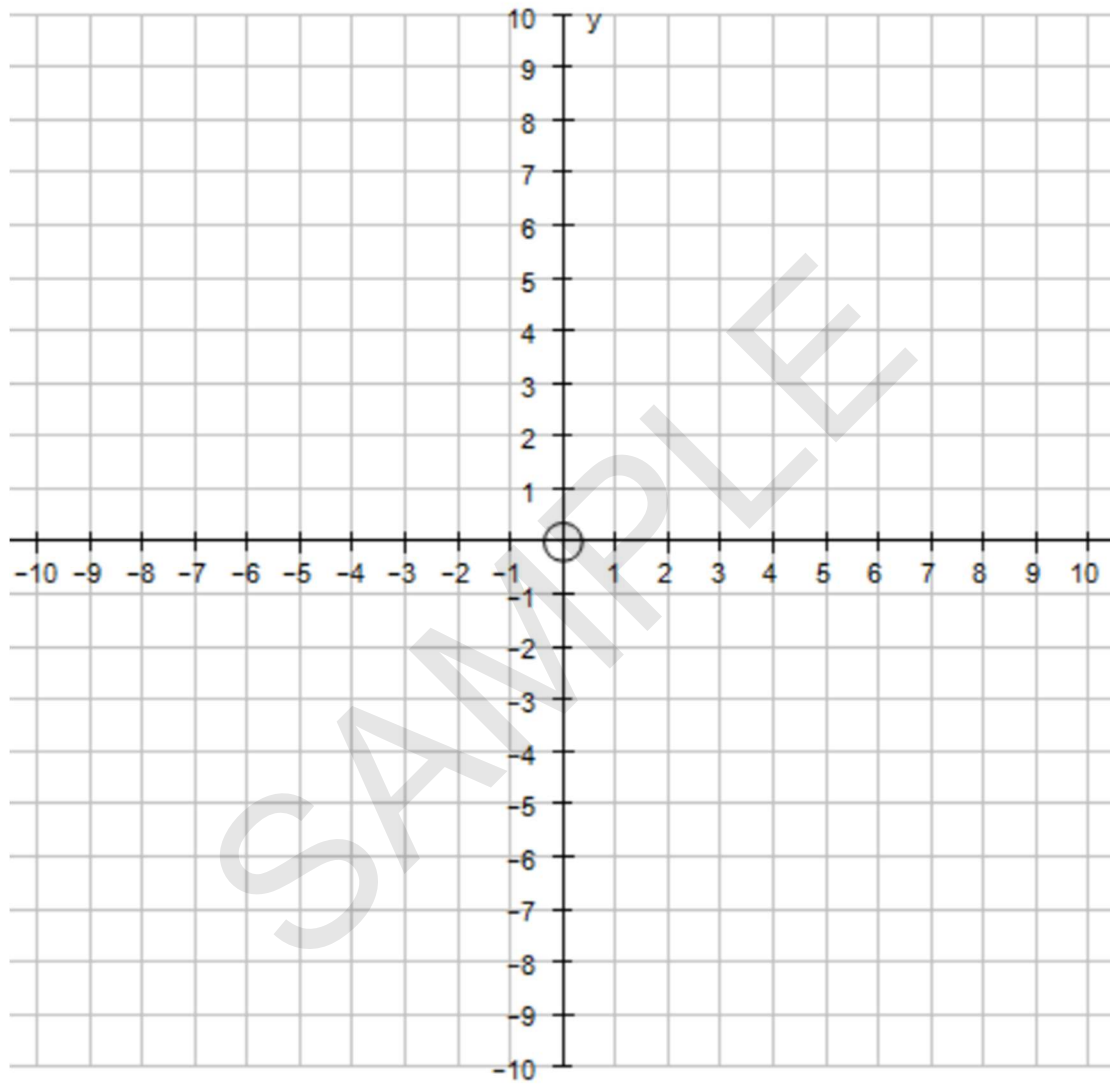


[3]

6.	Sam is x years old. Alice is 4 years older than Sam. Katy is 3 times older than Alice. (a) Write down the sum of their ages in terms of x. [2] (b) Given that the sum of their ages is 96, find how old Sam, Alice and Katy are. Sam is Alice is Katy is [3]	
----	--	--

7.	In a car park the ratio of white cars to red cars is 2:5 The ratio of white cars to blue cars is 3:13 Altogether there are 376 white, red and blue cars. How many red cars are there in the car park? 	[4]
----	--	-----

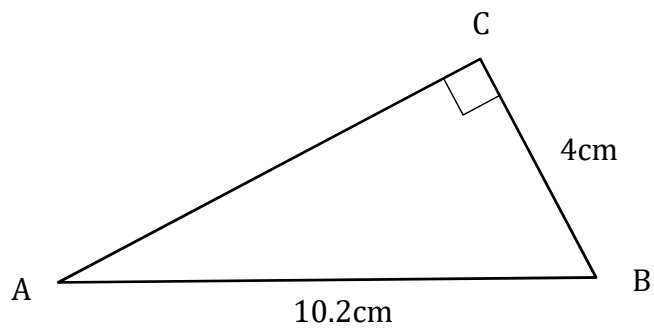
8. Sketch the graph of $y = 2x - 5$ on the following set of axes:



[2]

9.

ABC is a right-angled triangle.



Calculate the length of AC.

Give your answer correct to **3 significant figures**

.....cm [3]

END OF TEST