

REIGATE GRAMMAR SCHOOL

Entrance Examination  
MATHEMATICS

Time: 35 minutes  
Calculator Sample

Name: .....

- Work through the paper carefully
- You do not have to finish everything
- Do not spend too much time on any single question
- Show any working in the spaces provided

Pages	3	4	5	6	7	8
Marks						



Sample

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1) Given that  $a = \sqrt{b^3 - 25c}$  find;

a)  $a$  when  $b = 15$  and  $c = 126$

.....[3]

b)  $b$  when  $a = -4$  and  $c = 8$

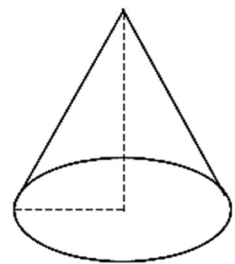
.....[4]

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2) You are given that the volume of a cone is equal to the area of the circular base multiplied by the height and divided by 3.

Given that the radius of this base is 4cm and the height is 8cm, find the volume of this cone.

Round your answer to the nearest whole number.



.....[4]



Sample

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- 3) In Pokemon Go, the cost of an incense and 3 Lure Modules is 290 pokecoins. This information can be written as:

$$I + 3L = 290$$

- a) The cost of 3 Incense and 2 Lure Modules is 310 pokecoins. Write down an equation to represent this information.

.....[2]

- b) Assuming all incense are the same price and all lure modules are the same price, find the cost of each incense and each lure module.

1 Incense = .....

1 Lure Module = .....[3]



Sample

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

a)

$$6x = 3x - (16 - x)$$

.....[3]

b)

$$\frac{5x}{4} - \frac{4x}{3} = 2$$

c)

$$\frac{3x}{5} = \frac{2}{9}$$

d)

$$\frac{15}{x} = 40$$

.....[3]

.....[3]

.....[2]



Sample



5) Look at the pattern below

		<b>Total</b>	
Row 1	1	= 1	= 1 <sup>2</sup>
Row 2	1 + 3	= 4	= 2 <sup>2</sup>
Row 3	1 + 3 + 5	= 9	= 3 <sup>2</sup>
Row 4	1 + 3 + 5 + 7	= 16	= 4 <sup>2</sup>
Row 5			

a) In the table above complete Row 5;

[2]

b) Which row will have a total of 121?

.....[2]

c) What is the total of row 256?

.....[2]



Sample

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- 6) A positive whole number less than 100 has a remainder 2 when it is divided by 3, a remainder of 3 when it is divided by 4, and a remainder 4 when it is divided by 5.  
What is the remainder when this number is divided by 7?

[You may use the following number grid to help you find the answer].

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

.....[2]



Sample

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- 7) At a holiday camp, the ratio of boys to girls is 3:4 and the ratio of girls to adults is 5:7. What is ratio of children to adults at the camp?

.....[2]

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- 8) In a sequence of positive integers, every term after the first two terms is the sum of the previous terms in the sequence. If the fifth is 2016, what is the maximum possible value of the first term?

.....[2]



Sample

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9) It is estimated that the population of Ireland goes up by 1.5% every year.  
In January 2016, the population of Ireland was 4,595,000.

a) What is the expected population of Ireland in January 2017?

.....[2]

b) What is the expected population of Ireland in January 2019 to the nearest whole number?

.....[3]

c) What is the expected population of Ireland in 2050 to the nearest whole number?

.....[3]



Sample