REIGATE GRAMMAR SCHOOL

11+/13+ PT Entrance Examination Exemplar

MATHEMATICS

Time allowed: 45 minutes

- This is a non-calculator paper
- 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**

Name:

Page	3	4	5	6	7	8	9	10	11	12	13	14	15	**Total**
Marks														
Available	7	7	9	6	9	8	9	9	9	10	10	5	2	**100**

1) In my library, I have 181 hardback books, 448 paperback books and 93 magazines. How many books and magazines do I have in total?

.................................[2]

2) Write the number 'fifty-nine thousand and thirty-two' in figures.

.................................[1]

3) A tube of smarties contains 38 sweets. A local shop has 52 tubes of smarties. How many individual smarties is this in total?

.................................[2]

4) Put these numbers in order of size, starting with the SMALLEST:

9.9, 9.09, 9.99, 9, 0.99, 0.909

………………………………………………………….. ....[2]

Smallest   Largest

5) What is the biggest number that divides into 12, 24, and 42?

.................................[1]

6) I buy two sandwiches and a packet of crisps. The sandwiches cost £2.40 each. Given that I get £4.40 change from a £10 note, how much did the packet of crisps cost?

£ ....[2]

7) A cake recipe makes 12 cupcakes and requires 100g of flour. How much flour do I need to make 30 cupcakes?

……………….g [2]

8) The rectangle below has an area of 36cm^2. Given that the length of the longest side is 9 cm, what is the perimeter of the rectangle?

9 cm

Diagram not to scale

.... cm [2]

9) (a)   What is 10% of £230?

....[1]

(b)   What is 4% of £75?

....[2]

10) (a)   What is 0.3 written as a fraction in its lowest terms?

....[1]

(b)   What is 0.005 written as a fraction in its lowest terms?

....[1]

(c)   What is 0.707 written as a fraction in its lowest terms?

....[1]

11) (a)   Write 45% as a fraction in its lowest terms.

....[1]

(b)   Write $\frac{3}{8}$ as a decimal.

....[2]

12) (a) I have a number of raffle tickets in a box: 6 pink tickets, 2 blue tickets and 4 white tickets. What is the probability of randomly picking a white ticket from the box?

..............................[2]

(b) A different box contains 60 tickets, which are either yellow or green. The probability of selecting a yellow ticket is $\frac{1}{4}$. How many of each colour ticket are in the bag?

Yellow ....

Green ....[2]

13) An athletics club has 96 members. Every member either runs long distance or short distance. There are three times as many long distance runners than short distance runners.

How many short distance runners are there?

..............................[2]

14) Calculate the following, giving your answers in their simplest form:

(a) $\frac{2}{3} \times \frac{6}{5}$

..............................[2]

(b) $\frac{2}{3} \div \frac{6}{5}$

..............................[2]

15) Calculate the following, giving your answer as a mixed number in its simplest form:

$$1\frac{5}{6} + 2\frac{3}{4}$$

..............................[2]

16) Calculate the following, giving your answer as a mixed number in its simplest form:

$$6\frac{2}{5} - 2\frac{2}{3}$$

..............................[3]

17) This multiplication has been worked out for you.

$$68 \times 114 = 7752$$

(a)   Using the information given above, what is $7752 \div 68$?

..................................[1]

(b)   Using the information given above, what is 136×57?

..................................[1]

18) Write down the next two numbers in the following sequences:

(a)   1, 5, 10, 16, ……, ……

(b)   2, 3, 5, 7, 11, 13, ……, ……

[2]

19) What are the missing numbers in the following calculations?

(a) $39 + \ldots\ldots = 91$

[1]

(b) $192 \div \ldots\ldots = 16$

[1]

(c) $(11 - \ldots\ldots) \times 13 = 91$

[1]

(d) $\frac{(71 - \ldots\ldots)}{5} = 7$

[1]

8

20) Nick is making a chocolate cake. It takes him 18 minutes to prepare the ingredients, the cake takes 23 minutes to bake and he needs to leave them for 6 minutes to cool down. If he wants to eat the cake at 4:15pm, what time should he start preparing the ingredients?

..............................[3]

21) I think of a number, multiply it by 6, then add 7. The result is 79. What was the number I first thought of?

..............................[2]

22) Ed needs to build a wall 28 bricks wide and 13 bricks high.

   (a)   How many bricks will there be in the wall?

..............................[2]

   (b)   He can lay 7 bricks every 3 minutes. How long will it take him to build the wall?

..............................[2]

23) How many seconds are there between 9am and 11am?

...............................[3]

24) On January 1st, the temperature in St Petersburg was -7°C and the temperature in Rome was 15°C. The temperature in Reigate was exactly half way between St Petersburg and Rome. What was the temperature in Reigate?

…………………………. [2]

25) The diagram shows a regular hexagon.
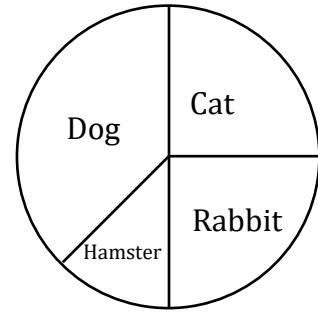
(a)   Find the value of x.

$3x + 6$ $21cm$

$4y - 7$
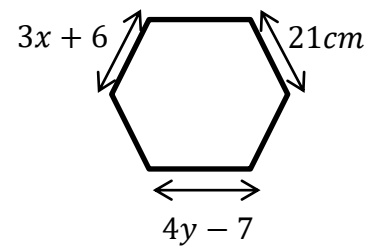
...............................[2]

(b)   Find the value of y.

...............................[2]

26) A class of 24 students vote on their favourite pet.

They then draw a pie chart to show their results.
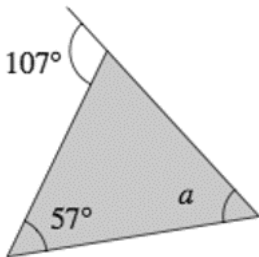
The pie chart is shown on the right.

    (a)   How many students' favourite pet is a Cat?

.................................[1]

    (b)   How many students' favourite colour is NOT a Dog?

.................................[2]

27) Find the value of a in the triangle shown.

.................................[3]

28) Josh and Karen are doing a 54km sponsored cycle ride.

    (a)   Karen can cycle at 9km per hour. How long will she take to finish the ride?

.................................[1]

    (b)   Josh can cycle at 7km per hour. How far will he still have left to cycle when Karen finishes?

.................................[2]

11

29) Find the area of the following shape:

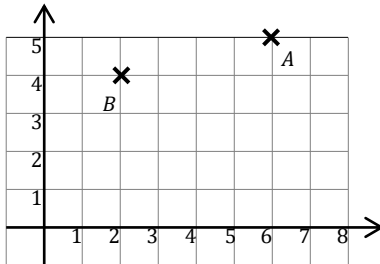2 cm

3 cm

6 cm

12 cm
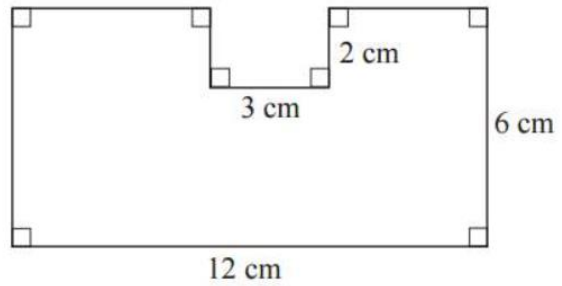
.... cm² [3]

30) Tina and Arabella have some sweets. Tina has 13 more sweets than Arabella, together they have 75 sweets. How many sweets does Tina have?

..............................[3]

31) In the diagram below, the point A has coordinates (6,5).

(a) Write down the coordinates of point B.

..............................[1]

(b) The point C has coordinates (6,2). Mark C on the diagram.

[1]

(c) Add one more point so that the four points make a parallelogram. Write down the coordinates of this fourth point and label it D.

..............................[2]

32) In a car park there are 72 cars. $\frac{5}{12}$ of the cars are red and 25% of the cars are blue. How many cars are neither red nor blue?

..............................[3]

33) Calculate the following:

$$36 - 4(9 - 2^2)$$

..............................[2]

34) A new mathematical operation has been invented. For any two numbers $a \boxdot b$ means 'multiply a by 3, then subtract by b', so $8 \boxdot 2$ means 8×3, then $- 2$, giving 22.
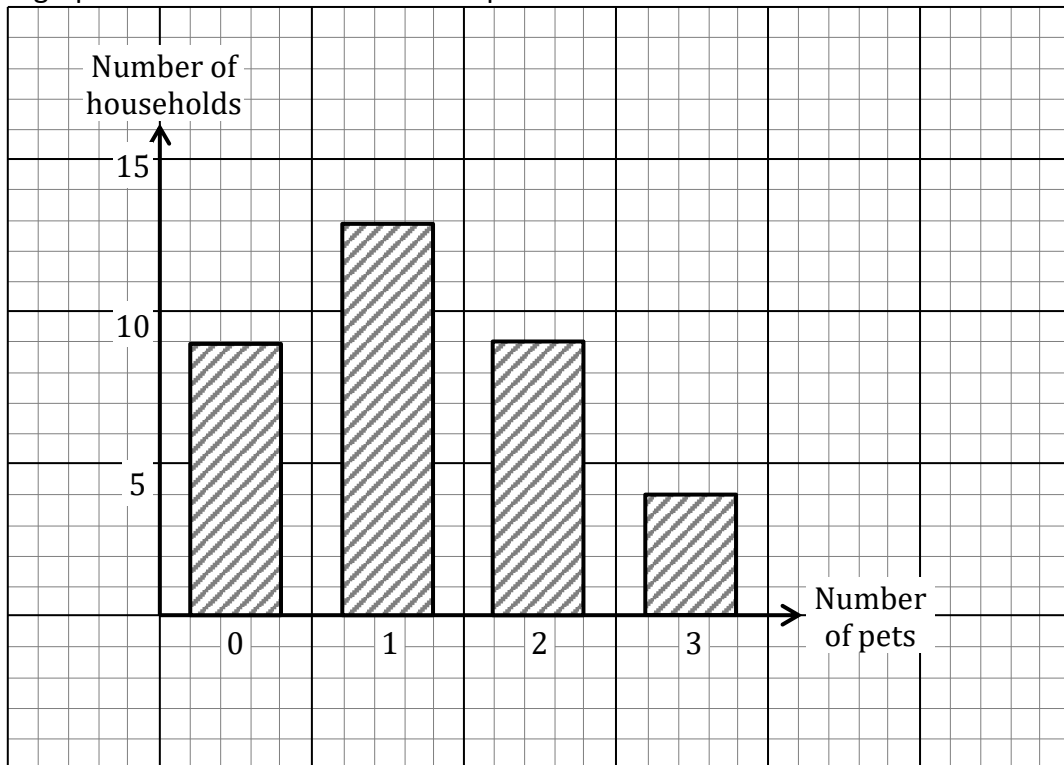
(a)   What is $6 \boxdot 5$?

..............................[1]

(b)   What values of a makes $a \boxdot 4 = 83$?

..............................[2]

(c)   Find y if $y \boxdot y = 26$

..............................[2]

13

35) The bar graph below shows the number of pets in each household in a street.

(a)   How many households have 3 pets?

...............................[1]

(b)   How many households are there in the street?

...............................[2]

(c)   How many pets are there in total?

...............................[2]

14

36)   On the axis below, sketch the graph of y = 2x + 1
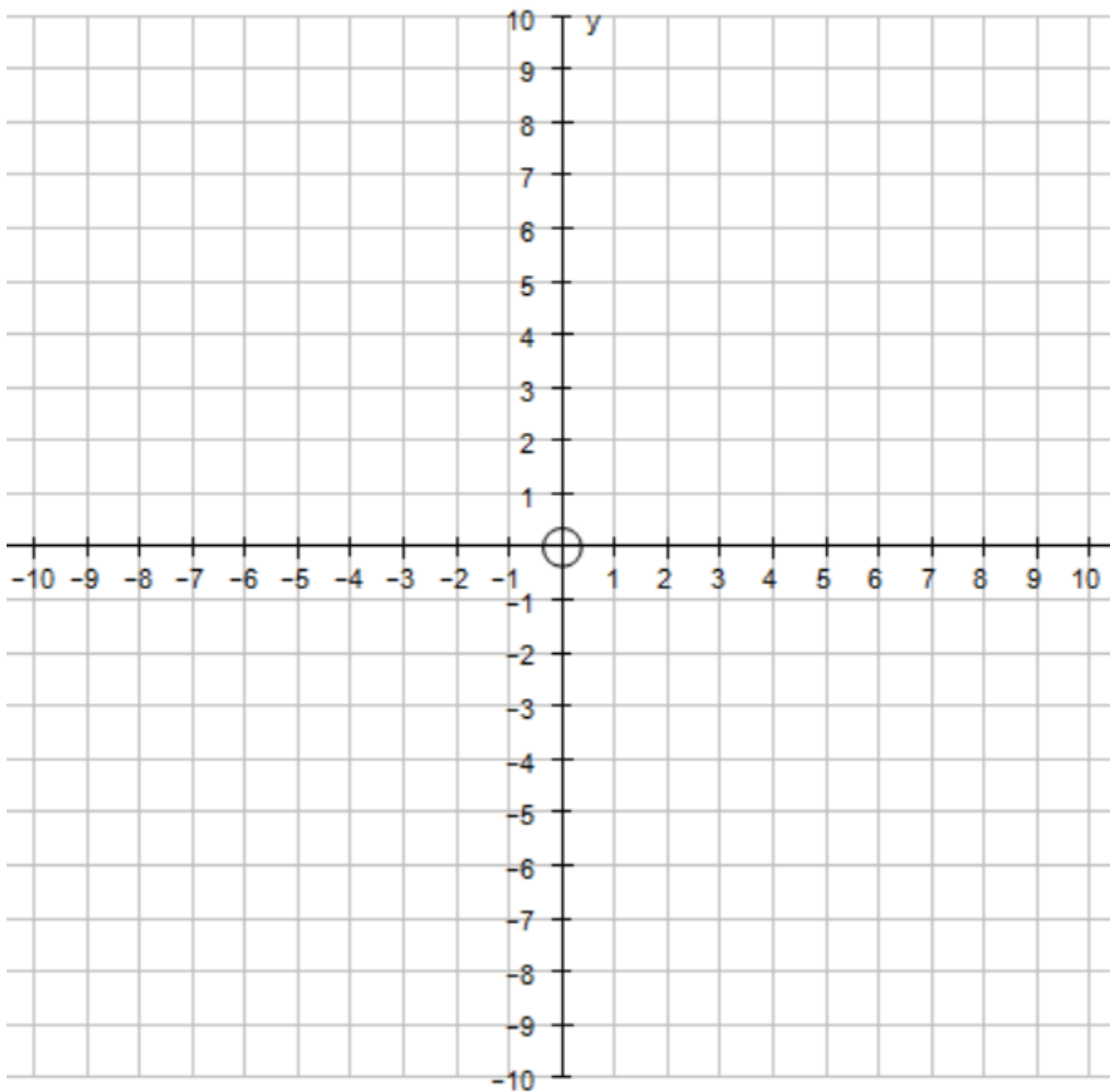
[2]

End of exam, please check your working.