

Write your number here:

## ENTRANCE EXAMINATION 2017

### MATHEMATICS

**45 MINUTES**

Total available marks = 80

WRITE YOUR NAME IN CAPITAL LETTERS IN THIS BOX

DO NOT WRITE IN THESE BOXES

#### Instructions

- You need to use a pen, pencil and a ruler
- You must NOT use a calculator
- Write your answer on the lines provided
- Show all your working. We want to see how you go about answering questions even if they are wrong
- Cross out any wrong working and DO NOT rub it out
- If you are unable to answer a question leave it out and go on to the next question
- Answer as many questions as possible but don't worry if you are unable to finish the paper

1. a) Add together

$$\begin{array}{r}
 4632 \\
 + 576 \\
 + 89 \\
 \hline
 \end{array}$$

b) multiply

$$567 \times 18$$

(2)

(3)

5

2. Write down

a) 3.1 m in cm Answer a).....(1)

b) 0.35 as a fraction **in its simplest form** Answer b).....(2)

c) 16:38 into the 12 hour clock giving am or pm Answer c).....(1)

d)  $\frac{67}{1000}$  as a decimal Answer d).....(1)

e) 38% as a fraction **in its simplest form** Answer e).....(2)

f)  $\frac{7}{10}$  as a percentage Answer f).....(1)

g) the next prime number after 37 Answer g).....(1)

h) round 389 to the nearest 10 Answer h).....(1)

i) the next square number after 125 Answer i).....(1)

11

3. I think of a number, then I add 7, then I multiply by 6 and the answer is 54.

What number did I think of?

Answer .....

2

4. Write down the next three terms in these sequences

(a) 7, 14, 21, 28, 35, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ (2)

(b) 1, 3, 6, 10, 15, 21, 28, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ (2)

(c) 4, 1, -2, -5, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ (2)

6

5. Here is what you need to make 8 slices of shortbread.

<p><u>Shortbread</u></p> <p>250g butter</p> <p>50g icing sugar</p> <p>50g caster sugar</p> <p>400g flour</p>
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a) Lucy makes 24 slices of shortbread. How much butter does she use?

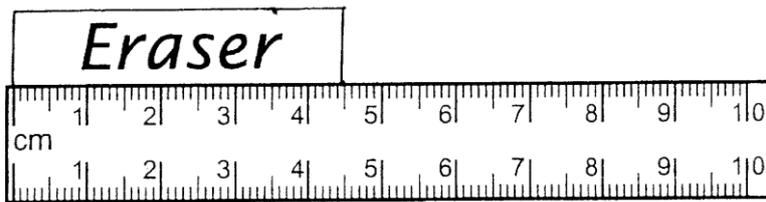
.....g (1)

b) Sophie uses 200g of icing sugar. How many slices of shortbread can she make?

.....slices (1)

2

6.



What is the length of this eraser?

.....cm

1

7. Work out  $\frac{5}{12}$  of £ 96

£.....

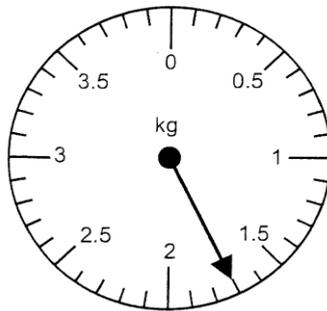
2

8. Flour costs 60p for 100 grams. Sarah spends £2.10 on a bag of flour.  
How many grams of flour did she buy?

.....grams

2

9. This is the dial of a weighing machine.

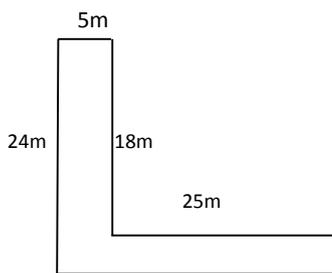


a) Write down the weight that the dial is displaying .....kg (1)

b) On the dial, draw the new position of the pointer if an extra 1.4 kg is added to the machine. (1)

2

10. The diagram shows the plan of a room. It is **NOT** drawn to scale.



Calculate, **giving units**

a) The perimeter of the room

Answer ..... (3)

b) The floor area of the room

Answer ..... (3)

6

11. Rob's car hire uses the following rule to calculate the cost in £ of hiring a car.

Divide the number of miles by 10 and then add 48

Mia hires a car and travels a total of 520 miles.

Use the rule to work out how much she pays to hire the car.

£.....

2

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12. Hannah buys six bars of chocolate costing 51p each.

She pays with a £10 note.

How much change does she receive?

£.....

2

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13. A party of 85 people go on a day trip to a local zoo. They travel by minibuses.

Each minibus holds 13 people.

a) How many minibuses are needed for the trip?

Answer ..... (1)

b) How many spare seats are there?

Answer ..... (1)

2

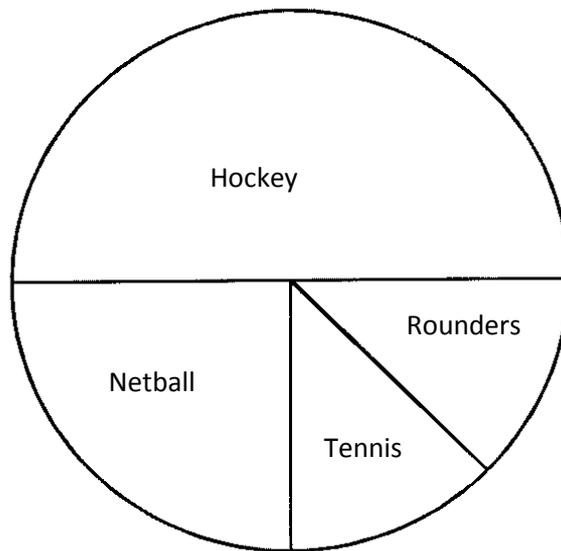
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14. Subtract 0.827 from 14.5

Answer .....

1

This pie chart shows the favourite sport picked by 120 children.



a) What percentage liked netball?

Answer ..... (1)

b) What fraction liked rounders?

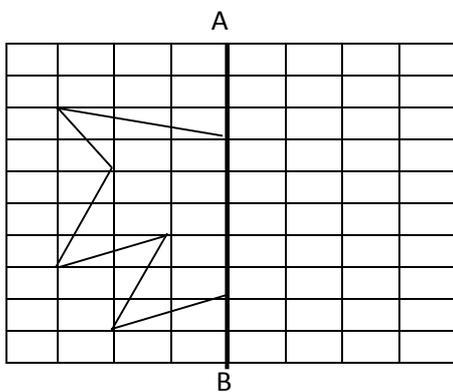
Answer ..... (1)

c) How many liked tennis?

Answer ..... (1)

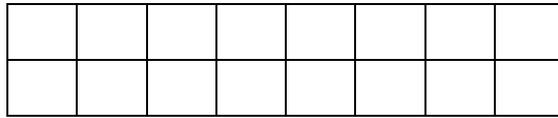
3

15. Half of the shape is shown. Complete the shape with AB as line of symmetry.

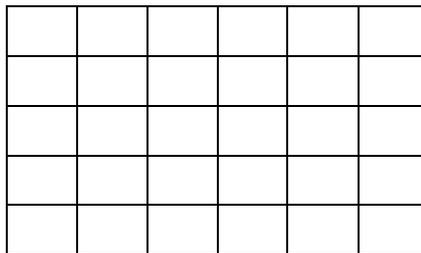


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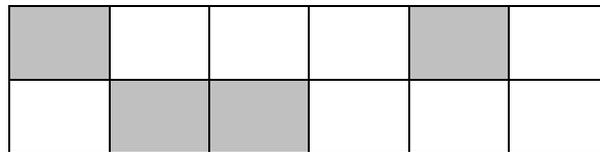
16. a) Shade  $\frac{5}{8}$  of this shape (1)



- b) Shade 20% of this shape (1)



- c) What fraction of this shape is shaded? Give your answer in its simplest form. (2)



Answer .....

4

17. Nine pupils did a spelling test. Their scores were:

3, 4, 5, 5, 7, 9, 9, 10, 11,

- a) What is their mean (average) score?

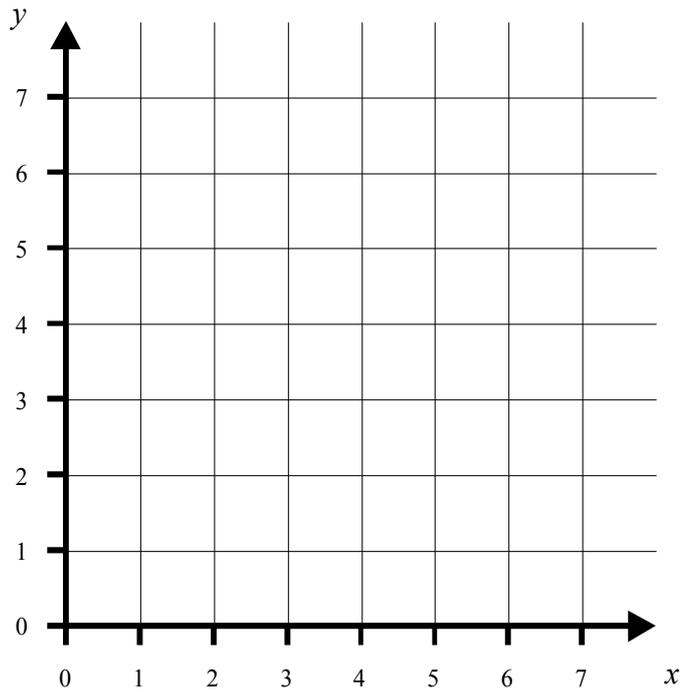
Answer ..... (2)

- b) When a tenth pupil sat the same test the mean score remained the same. What score did the tenth pupil get?

Answer ..... (1)

3

18. a) On the grid above, mark on the points A (1,2) B (2,7) C (6,7) and D(5,2) (2)



Join A to B, B to C, C to D and D to A.

b) What is the name of the shape that you have drawn?

Answer ..... (1)

c) State the order of rotational symmetry on the shape

Answer ..... (1)

d) If each square on the grid is exactly 1 cm by 1 cm, what is the area of the shape that you have drawn?

Answer ..... (1)

5

19. What is the smallest number that must be added to 231 so that the total can be exactly divided by 9?

Answer .....

2

20.  $a * b$  means  $4 \times a - b$

For example  $2 * 5 = 4 \times 2 - 5$   
 $= 3$

a) Find  $3 * 6$

Answer ..... (1)

b) Find  $c$  if  $c * 7 = 25$

Answer ..... (2)

3

21. Lorraine's family are going on holiday and take 3 suitcases A, B and C.

Case A weighs 10kg, case B weighs 14kg and case C weighs  $y$  kg.

The difference in weight between case B and C is twice the difference between case A and B.

How heavy is case C?

Answer .....kg

2

22.  $56 \times 2341 = 131096$

Use this result to write down the value of

a)  $560 \times 23410$

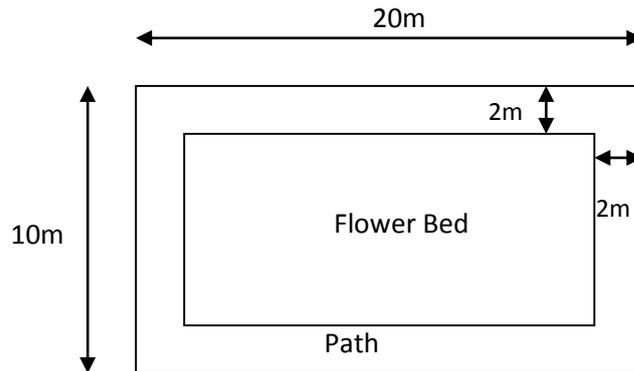
a)Answer ..... (1)

b)  $131.096 \div 0.56$

b)Answer ..... (1)

2

24.



This diagram shows a flower bed surrounded by a path. The path is 2m wide.

Work out

a) The area of the flower bed .....m<sup>2</sup> (3)

b) The area of the path .....m<sup>2</sup> (3)

c) A paving slab is 1m by 1m. How many paving slabs are needed to cover the path?

Answer..... (2)

8

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**End of Examination – make sure you check your answers if you have time.**

**Total marks = 80**