THE PERSE

UPPER SCHOOL

CAMBRIDGE

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Year 7 Entrance Exams

Maths

Specimen Paper 1

Instructions to candidates

Time allowed: 45 minutes

Instructions to candidates:

1. Show all working - you may receive marks for correct working even if your final answer is wrong. **Leave all fractions in their lowest form.**

2. Answer as many questions as you can, in any order.

3. Do not spend too long on any one question - if you get stuck, move on to the next.

4. Answers and working should be written on the exam paper in the spaces provided.

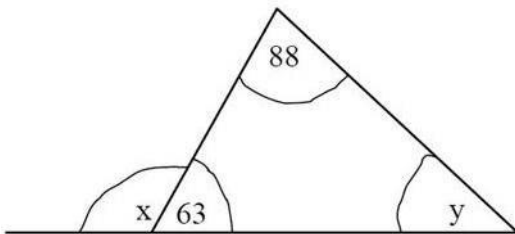5. Calculating aids are **NOT** permitted.

1. Write the missing number in the space provided.

   $56 \div \boxed{} = 8$

2. Here is a number sequence. Write in the missing number.

   3   6   10   15 $\boxed{}$

3. The diagram below shows a triangle [not drawn to scale].

   Calculate each of the angles marked x and y.

   Answer: x = _____ ; y = _____

4. Change 0.72 to a fraction leaving your answer in its simplest form

   Answer: _____

5. Calculate each of the following

   (a) $3 - 2\frac{5}{9}$

   Answer: _____

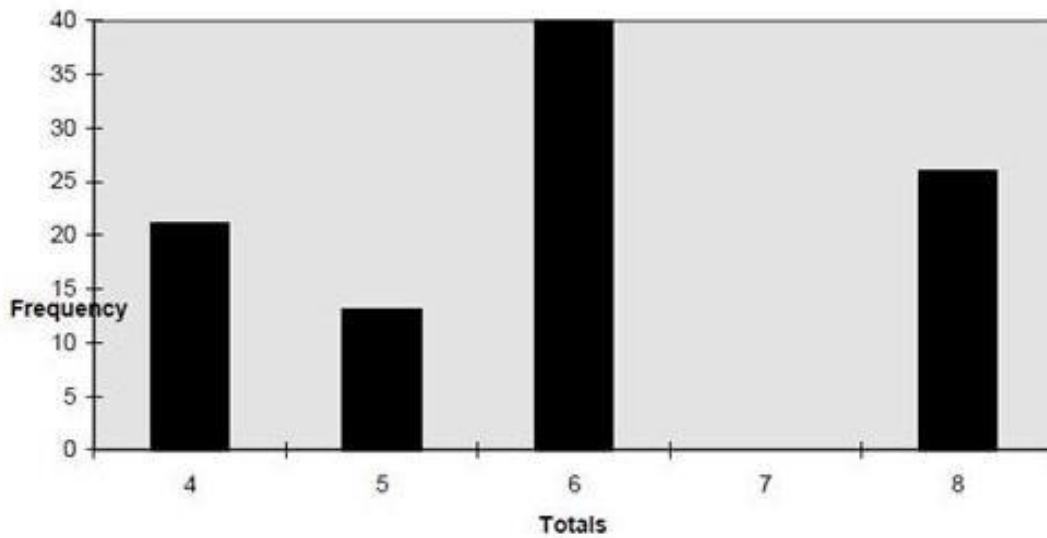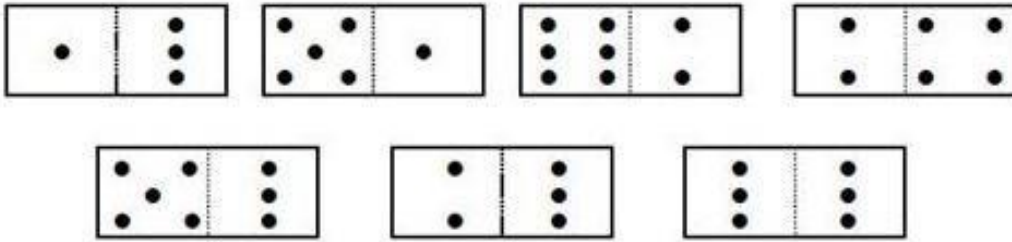   (b) $2 + 4 \times \frac{3}{5}$

   Answer: _____

6. My garden centre sells Summer bedding plants at 85p each. I have £30 to spend. How many plants can I buy? Show your working.

Answer: _____

7. Write in what the two missing digits could be:

| | 3 | 4 | + | | 9 | 7 | = | 631 |

8. Brian has 7 dominoes in a bag. He takes out one domino and finds the total of the two numbers. He then puts the domino back in the bag. His 7 dominoes are shown below, together with a graph of his results after doing this experiment 100 times.

(a) Explain why the total 7 never came up.

Answer: _____

_____

(b) Explain why the total of 6 came up most often.

Answer: _____

_____

9. Write in the missing numbers to each of the following:

(a) 93 - ☐ - 18 = 36

(b) (8 + ☐) x 7 = 91

10. Which of the following fractions is closet to $\frac{1}{4}$

$$\frac{11}{40}, \frac{16}{60}, \frac{21}{80}, \frac{26}{100}, \frac{31}{120}$$

Answer: _____

11. Susan is making a necklace of beads, using red and yellow beads in the ratio 2 : 3. She has 56 red beads altogether.

How many yellow beads will she need:

Answer:_____yellow beads

How many beads will she use altogether?

Answer:_____beads

12. The three numbers missing from these boxes are all prime numbers. Write in the missing numbers.

☐ X ☐ X ☐ = 385

13. Brian is looking at the schedule of TV programmes for that evening.

BBC 1	ITV
5.45 'Neighbours'	5.40 News
6.00 News	6.00 Cartoons
6.30 Top of the Pops	6.20 Film
7.10 Sport	8.05 Comedy Programme
9.25 Drama	9.00 Documentary

Brian watches the film on ITV but after 1/2 an hour he changes channel to BBC 1. What is showing on BBC 1 when he changes channel?

Answer: _____

The Drama on BBC 1 lasts for 1 hour and 40 minutes. At what time does it end?

Answer: _____

14. Make a list of all the whole numbers which leave a remainder of 7 when divided into 46.

Answer: _____

15. The charge £C made by a caterer for arranging a birthday party for n people is given by the formula:
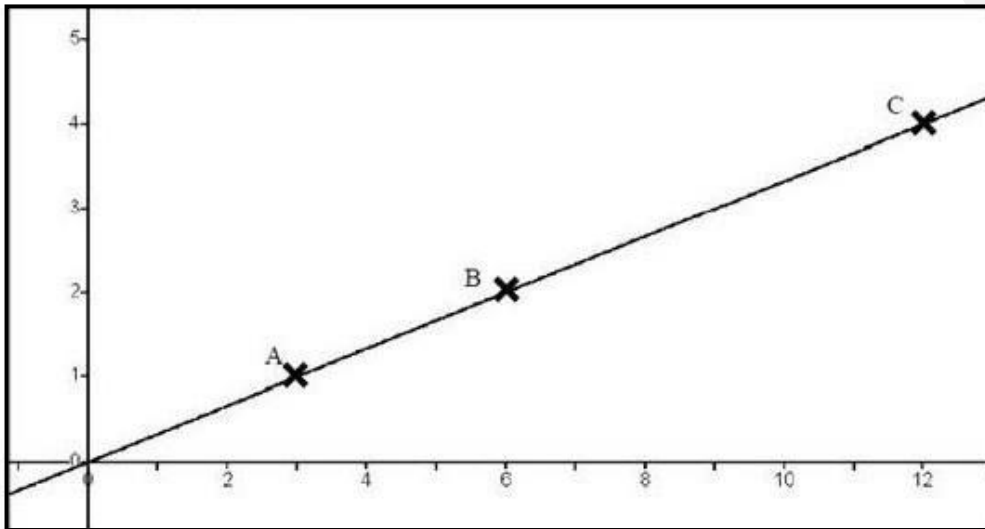
$$C = 3n + 40$$

(a) What is the charge, in £, for a party of 20 people?

Answer: £_____

(b) What is the average cost per person for a party of 20 people?

Answer: £_____

16. Study the graph below:

The co-ordinates of A, B and C are: A (3 , 1) ; B (6 , 2) ; C (12 , 4)

The value of D (not shown) also lies on this line. If D is (15 , a), what is the value of a?

Answer: a = _____

E is another point (not shown) o this line and E is (b , 8).

What is the value of b?

Answer: b = _____

If (p , q) is another point on this same line, write down a relationship (equation) between p and q.

Answer: _____

17.   Find the value of each of the following:

(a)   68.9 + 9.86

Answer: (a) _____

(b)   321 - 268

Answer: (b) _____

(c)   391 x 7

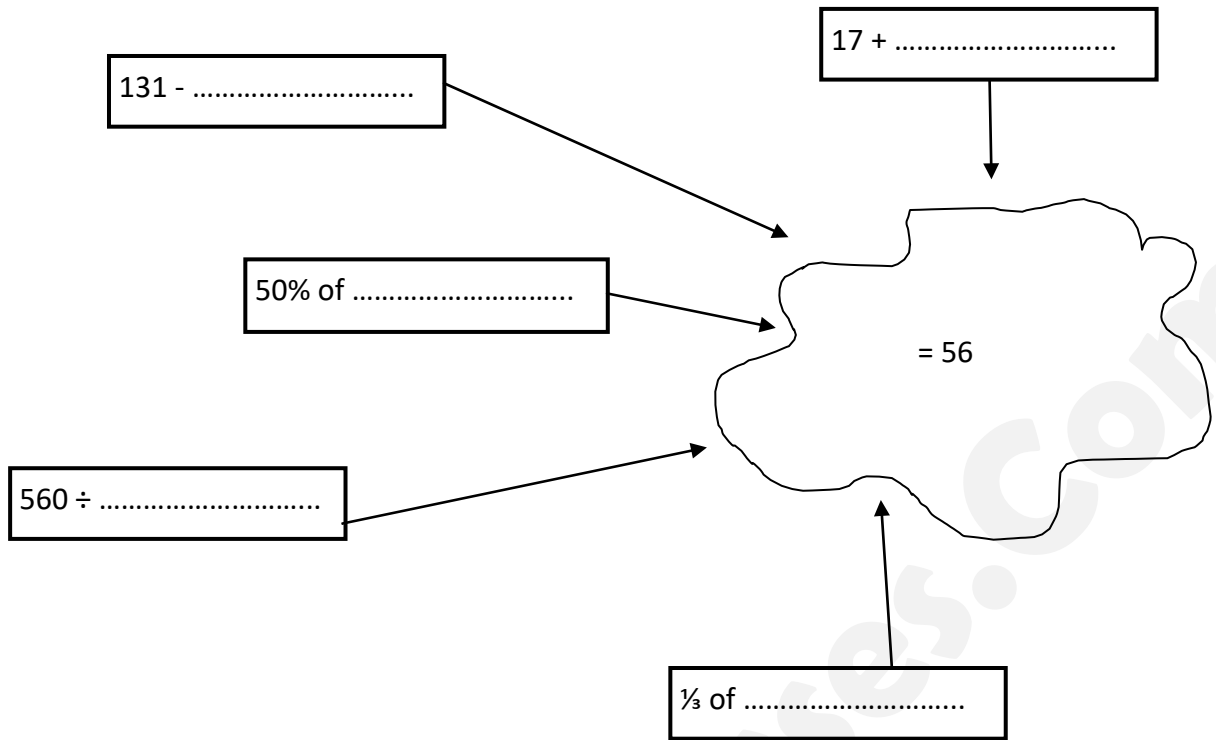Answer: (c) _____

(d)   656 ÷ 8

Answer: (d) _____

18.   Brian starts with 1000 and subtracts 11 each time. The first four numbers in his sequence are:
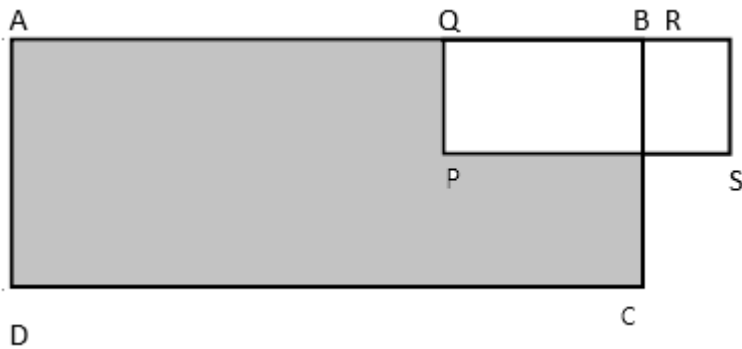
1000, 989, 978, 967

If he continues in this way, what will be the first negative number in his sequence?

Answer: _____

19. Find the missing numbers so that the answer is always 56

131 - …………………………

17 + …………………………

50% of …………………………

= 56

560 ÷ …………………………

⅓ of …………………………

20. Two rectangles ABCD and PQRS are shown below:

AD = 3cm

AB = 5cm

PQ = 2cm

PS = 2cm

BR = 1cm

Calculate the shaded area.

Answer:_____cm²

NOW CHECK THROUGH YOUR WORK CAREFULLY!