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THE PERSE

UPPER SCHOOL

CAMBRIDGE

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.

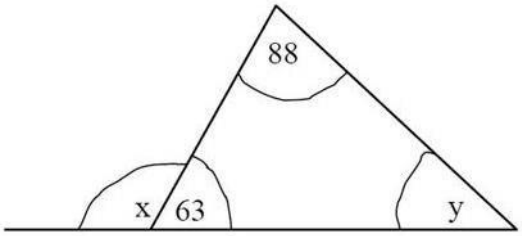
56 ÷ ☐ = 8

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

3 6 10 15 ☐

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: _____

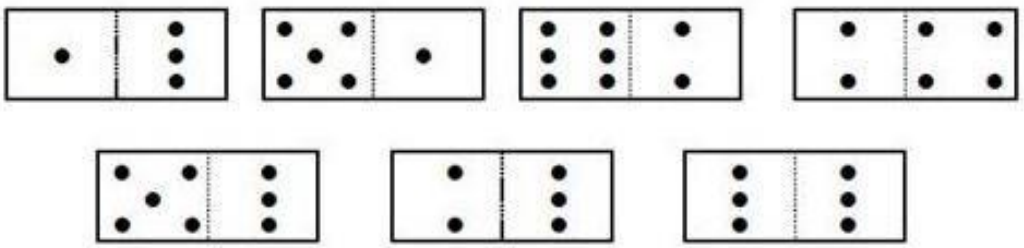
6. My garden centre sells Summer bedding plants at 85p each. I have £30 to spend. How many plants can I buy? Show your working.

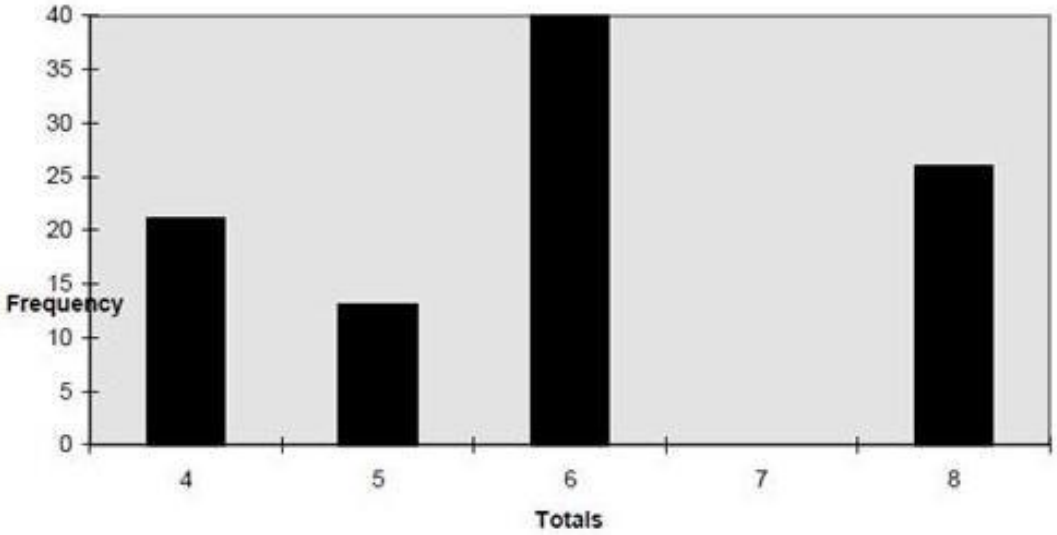
Answer: _____

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 - $\square$ - $\boxed{18}$ = 36

(b) $\left(8 + \square\right)$ 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.

$\square$ X $\square$ X $\square$ = 385

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

BBC 1
5.45 'Neighbours'
6.00 News
6.30 Top of the Pops
7.10 Sport
9.25 Drama

ITV
5.40 News
6.00 Cartoons
6.20 Film
8.05 Comedy Programme
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:

$$C = 3n + 40$$

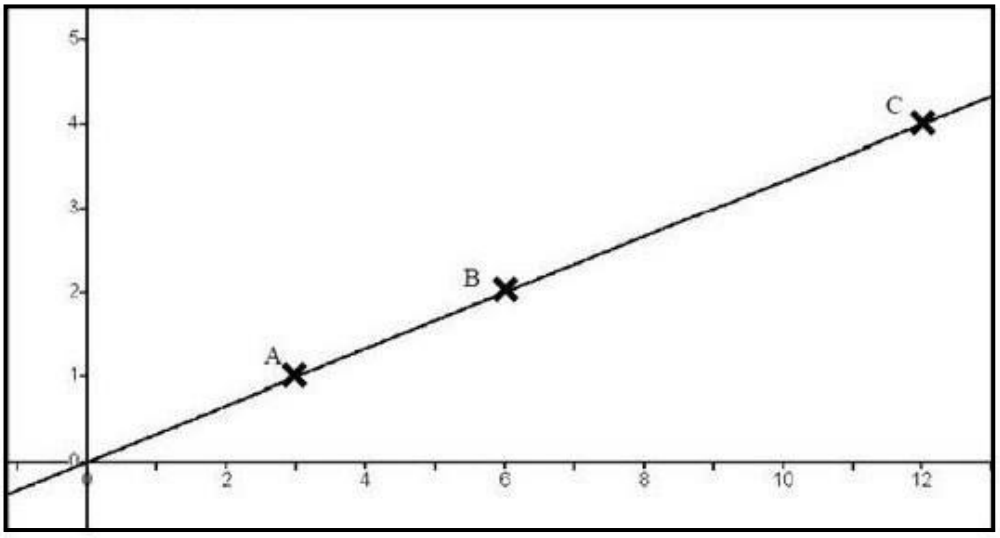
(a) What is the charge, in £, for a party of 20 people?

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) _____

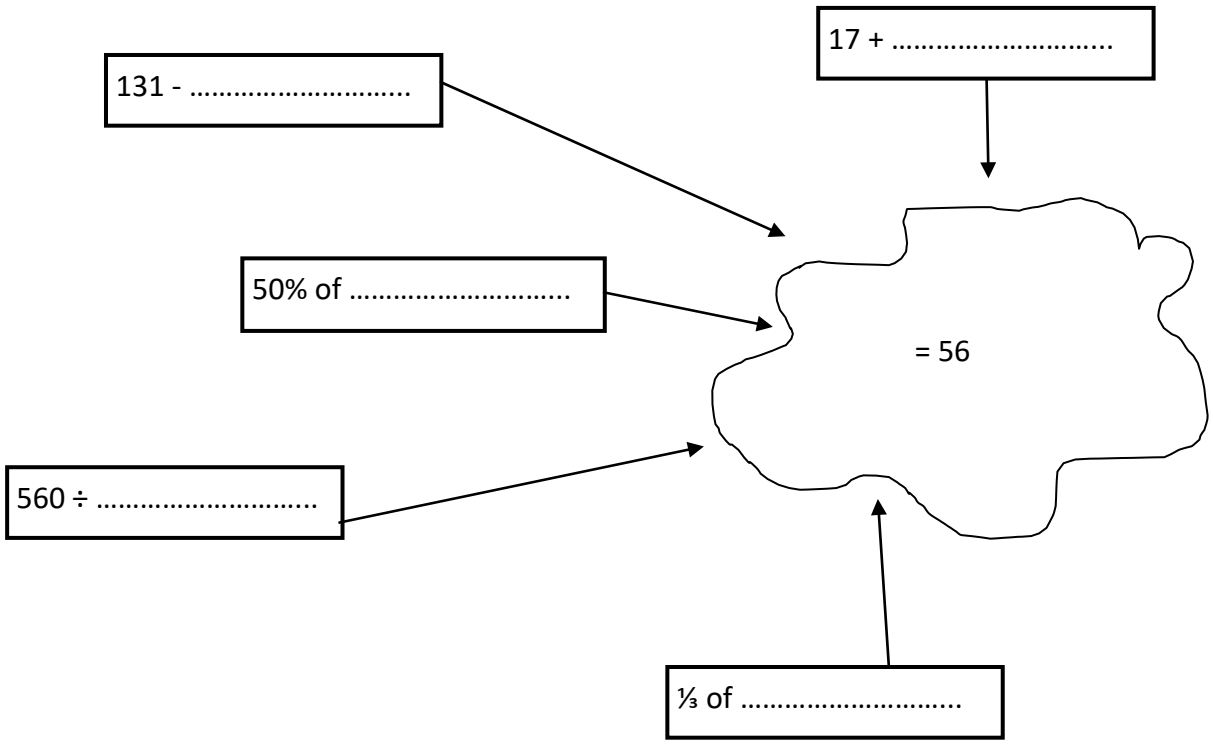
18. Brian starts with 1000 and subtracts 11 each time. The first four numbers in his sequence are:

1000, 989, 978, 967

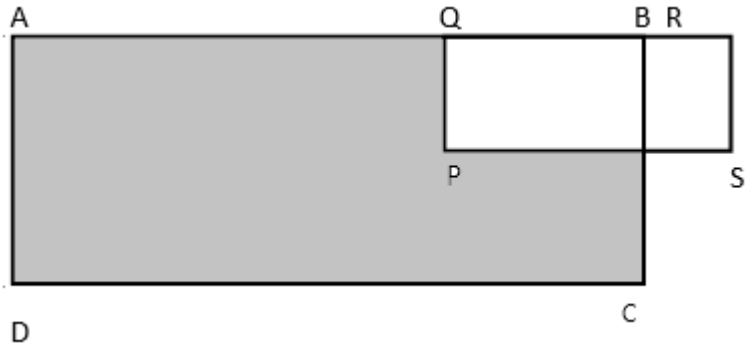
If he continues in this way, what will be the first negative number in his sequence?

Answer: _____

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



20. Two rectangles ABCD and PQRS are shown below:



AD = 3cm

AB = 5cm

PQ = 2cm

PS = 2cm

BR = 1cm

Calculate the shaded area.

Answer:_____cm^2

NOW CHECK THROUGH YOUR WORK CAREFULLY!