Chigwell School

13+ Maths
Specimen Paper

45 Minutes

CALCULATORS NOT ALLOWED

Full marks can be obtained by answering All questions.

Show all your working.

The mark for each question is shown in brackets.

There are 20 questions and the total number of marks is 60.

1. Evaluate;

(a) $8409 + 70.74$

Answer: ..... (1)

(b) $270 \div 0.12$

Answer: ..... (1)

2. Work out the following;

(a) $18\frac{4}{15} + 29\frac{1}{3}$

Answer: ..... (1)

(b) $3\frac{3}{4} \div \frac{5}{8}$

Answer: ..... (1)

3. simplify;

(a) $3pq \times 4q$

Answer: ..... (1)

(b) $\frac{12y}{4y^2}$

Answer: ..... (1)

4. multiply out the brackets and simplify;

(a) $4(3x - 2) - 3(x + 7)$

Answer: ..... (2)

(b) Factorise

$24k^2 - 18k$

Answer: ..... (2)

(c) Simplify $2a - 4 - 3a + 11$

Answer: ..... (1)

5. (a) Solve the equation

$2(x + 2) = 8x$

Answer: $x =$..... (2)

(b) (i) Solve the inequality

$\frac{2}{3}h < 5$

Answer: ..... (1)

(ii) List the positive whole numbers which satisfy the inequality in (b) (i).

Answer: ..... (2)

6. In this question;

a = 2 b = -3 c = -1

Find the value of the following expressions:

(i) 2a + b - c

Answer: ..... (1)

(ii) $a\mathrm{b}^2$

Answer: ..... (1)

7. Complete these sentences.

a). **20%** of £21 is .....

b) ..... out of 20 is **30%**.

c) **9** out of ..... is **5%**.

(3)

8. 72 expressed as a product of its prime factors is $2^3 \times 3^2$

a) Express 60 as a product of prime factors.

Answer: ..... (1)

b) What is the Highest Common Factor of 60 and 72 ?

Answer: ..... (1)

9. Calculate these. Show each step of your calculation.

a) $8 \times 4 + 24 \div 3 =$

.

Answer: .....(1)

b) $\dfrac{120.}{6 + 3^2}$

Answer: ..... (1)

10.

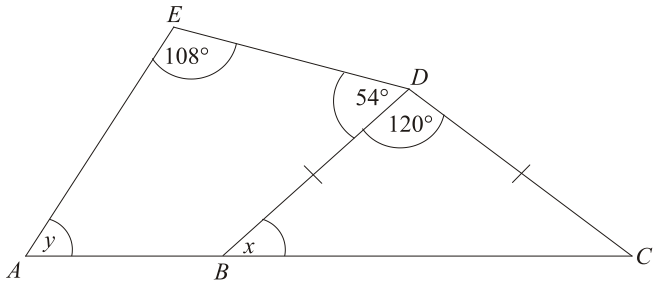


Diagram **NOT** accurately drawn

In the diagram, *ABC* is a straight line and *BD* = *CD*.

(a) Work out the size of angle *x*.

Answer: .....º (1)

(b) Work out the size of angle *y*.

Answer: …...…… º (1)

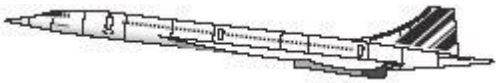
11. Simplify this ratio: a) £3 : 45p

Answer ..... (1)

b) The ratio of flowers to weeds in my garden is 8 : 7 . If there are 90 flowers how many weeds are there?

Answer: .....(2)

12.



Concorde could travel **1 mile every 3 seconds**.

8 kilometres is the same distance as 5 miles.

How far would Concorde travel in 1 hour ? (give your answer in kilometres).

Answer: .....(2)

13.

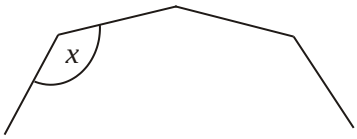


Diagram **NOT** accurately drawn

The diagram shows part of a **regular** 9-sided polygon.

Work out the size of the angle marked *x*.

Answer: ..... (2)

14. (a) The subject of the equation below is p

$$p = 4(3e + f)$$

Rearrange the equation to make *e* the subject.

Answer: ..... (2)

(b) Rearrange the equation $3r = \frac{1}{2}c - d$ to make d the subject.

Show your working.

Answer: ..... (2)

15. Solve the simultaneous equations;

$$x + 2y = 5$$

$$4y + 3x = 20$$

Answer: *x* = ... *y* = ... (3)

16. Mrs Wade invested £3200 in a rare piece of Art. After four years her investment was worth £4000. What was her percentage profit over this time?

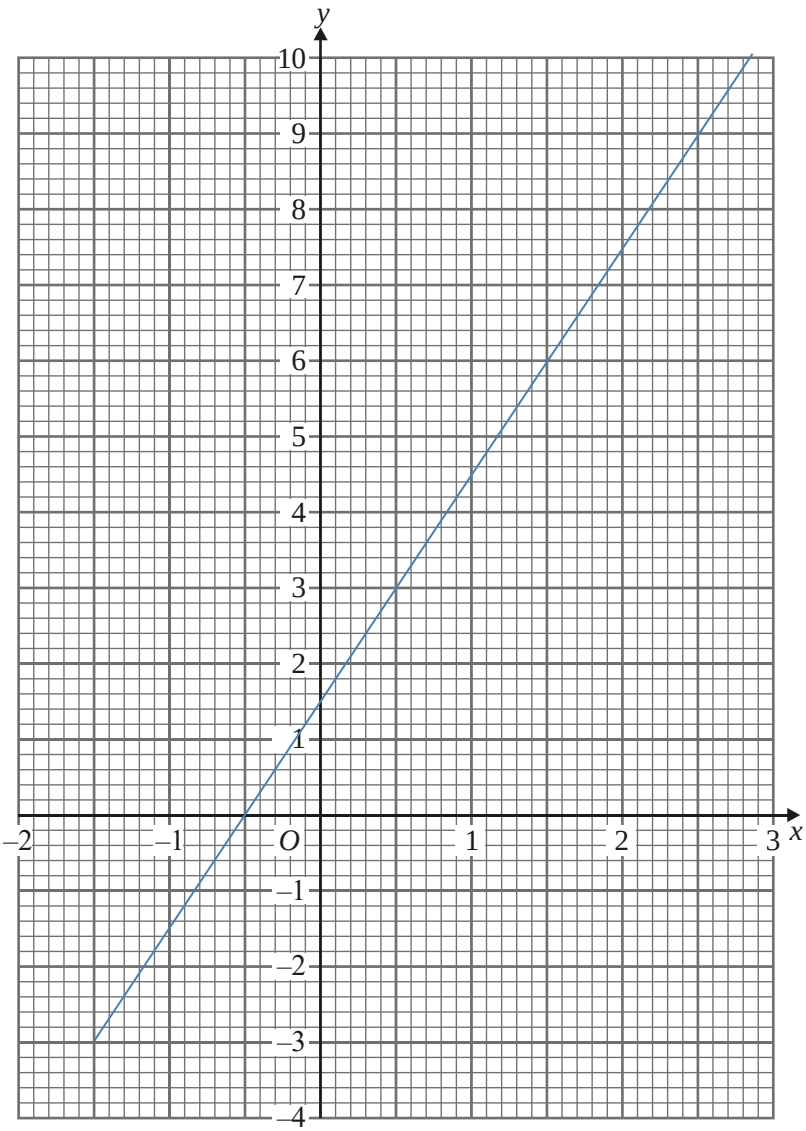
Answer: ..... (2)

17. (a) Complete the table of values for $y = 6 - 2x$

x	–2	–1	0	1	2	3
y				4		

(2)

(b) What is the equation of the line drawn on the axes below.



Answer: ..... (2)

(Total 4 marks)

18. 20 students scored goals for the school hockey team last month.
The table gives information about the number of goals they scored.

Goals scored	Number of students	
1	9	
2	3	
3	5	
4	3	

(a) Write down the modal number of goals scored.

.....

(1)

(b) Work out the median number of goals scored.

.....

(1)

(c) Work out the mean number of goals scored.

.....

(2)

(Total 4 marks)

19. A bag contains some shapes. Each shape is a circle or a triangle or a square. Lewis takes at random a shape from the bag. The probability that he will take a circle is 0.3. The probability that he will take a triangle is 0.1

(a) Work out the probability that he will take a square.

..... **(1)**

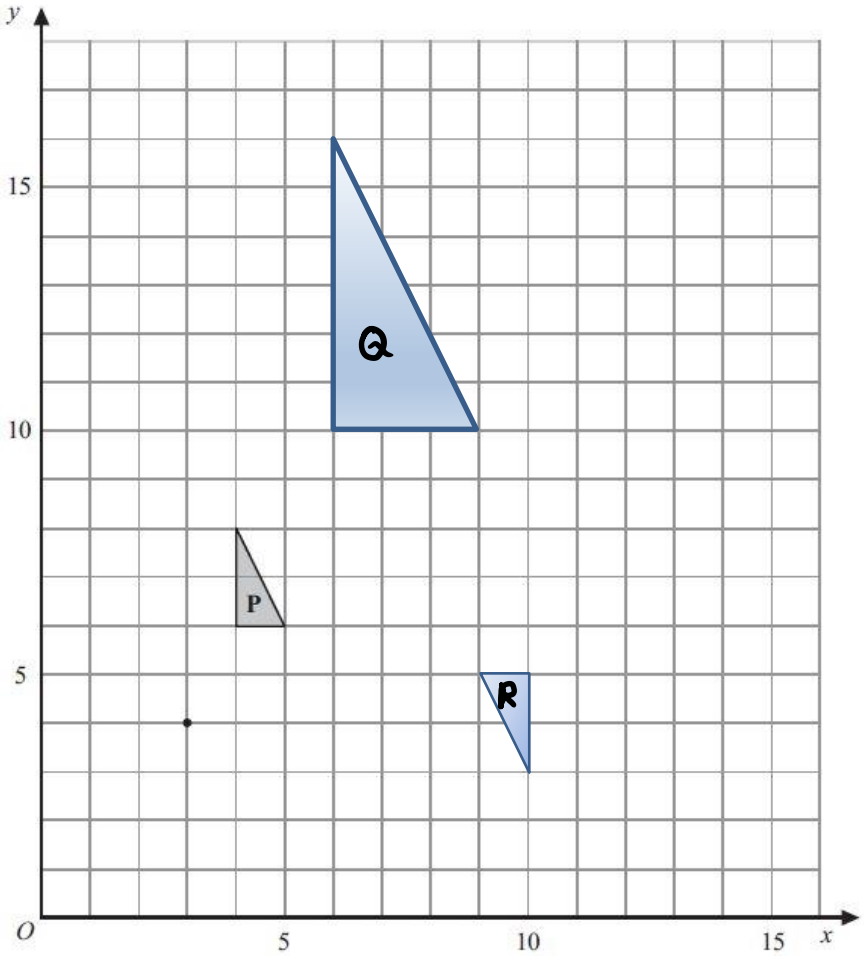
(b) Work out the probability that he will take a shape with straight sides.

..... **(1)**

Grace takes at random one of the shapes from the bag and then replaces the shape. She does this 160 times.
(c) Work out an estimate for the number of times she will take a circle.

..... **(2)**
(Total 4 marks)

20.



a) Describe fully the transformation that takes shape P to shape Q

..... **(3)**

b) Decribe fully the transformation that takes shape P to shape R

..... **(2)**
(Total 5 marks)

END of PAPER **TOTAL = 60 Marks**