CITY OF LONDON
FREEMEN'S SCHOOL

SAMPLE ENTRANCE EXAMINATION PAPER

For pupils currently in Year 8

MATHEMATICS

Time: 1 hour 30 minutes

- **Attempt <u>all</u> the questions. Show all your workings.**
- **Marks will be given for working which shows that you know how to solve the problems, even if you get the wrong answer.**
- **Non-calculator.**

EWB	S1214	✓	MAT

1. $\frac{1}{2} + \frac{2}{3} =$

2. $1\frac{1}{4} \div \frac{5}{6} =$

3. $3^3 - 4^2 =$

4. $5 + -4 \times -3 =$

5. Round off to the nearest thousand:

   25839 = _____

6. Round off to the nearest whole number:

   a] 3.49 = _____ b] 5.83 = _____

7. Correct to 3 significant figures:

   a] 2.539 = _____ b] 0.03542 = _____

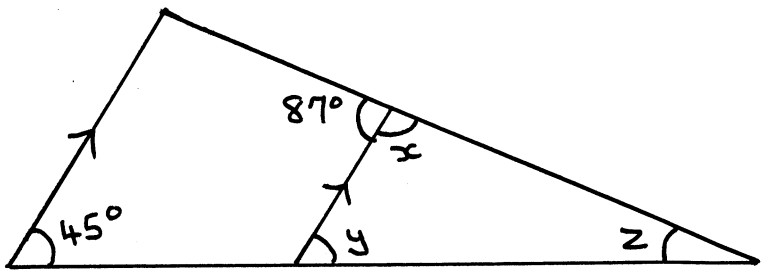
8. Correct to 2 decimal places:

   a] 3.142 = _____ b] 0.0291 = _____

9. Correct each number to 1 significant figure, and hence give a rough estimate of the answer to:

$$\frac{3.75 \times 28.45}{9.99}$$

10. Find the sizes of the marked angles. (You need not show your working).



x = _____ °

y = _____ °

z = _____ °

11. Radio Volga broadcasts in English, German and Russian. Half its programme time is in English and one quarter is in German. Gillian tunes in by accident.

What is the probability that the language she hears

a] is not English? _____

b] is Russian? _____

12. If A = $\frac{1}{2}$ (a + b) x c, find the value of

a] A if a = 5, b = 7, c = 9

_____

b] c if A = 96, a = 11, b = 5

_____

13. Solve the following equations.

a] 12 - 4m = 0 _____

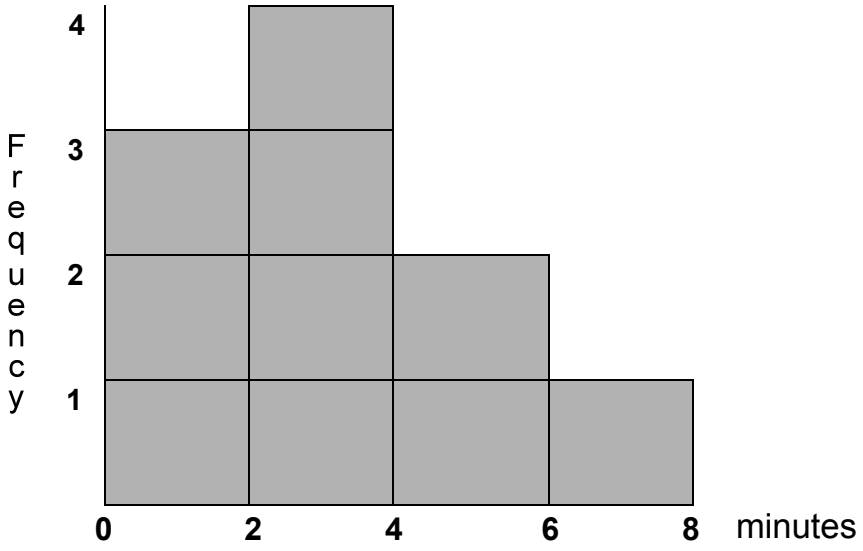
b] 5 (t + 1) = 25 _____

c] 5 + 2y = 8 + y _____

d] 4 (1 - m) = 2 (m - 5) + 8

_____

14. The frequency chart shows the times that Pam had to wait at the Supermarket checkout over a period of 10 shopping days.



How often did she have to wait

a] for at least 2 minutes _____

b] for more than 4 minutes _____

15. Look at this sequence 15, 19, 23, 27, 31

Write down

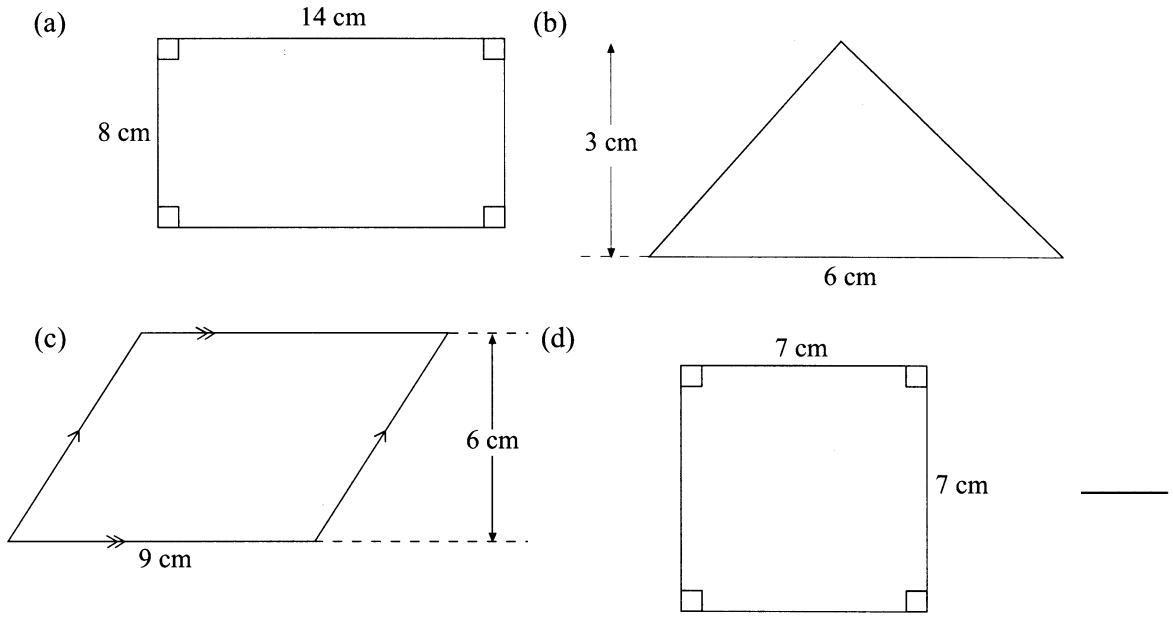
a] the 6th term _____

b] the 26th term _____

16. Continue the sequence 4, 9, 14, 19, 24, _____, _____
There are 'n' terms in the sequence.

What is the nth term? _____

17. Calculate the area of each of the following shapes:



Area (a) = _____

Area (b) = _____

Area (c) = _____

Area (d) = _____

18. $\frac{15}{16}$ as a decimal is 0.9375

What is $\frac{31}{16}$ as a decimal?

_____

19. A number machine has a mapping rule $x \rightarrow \boxed{x\ 2} \rightarrow y$

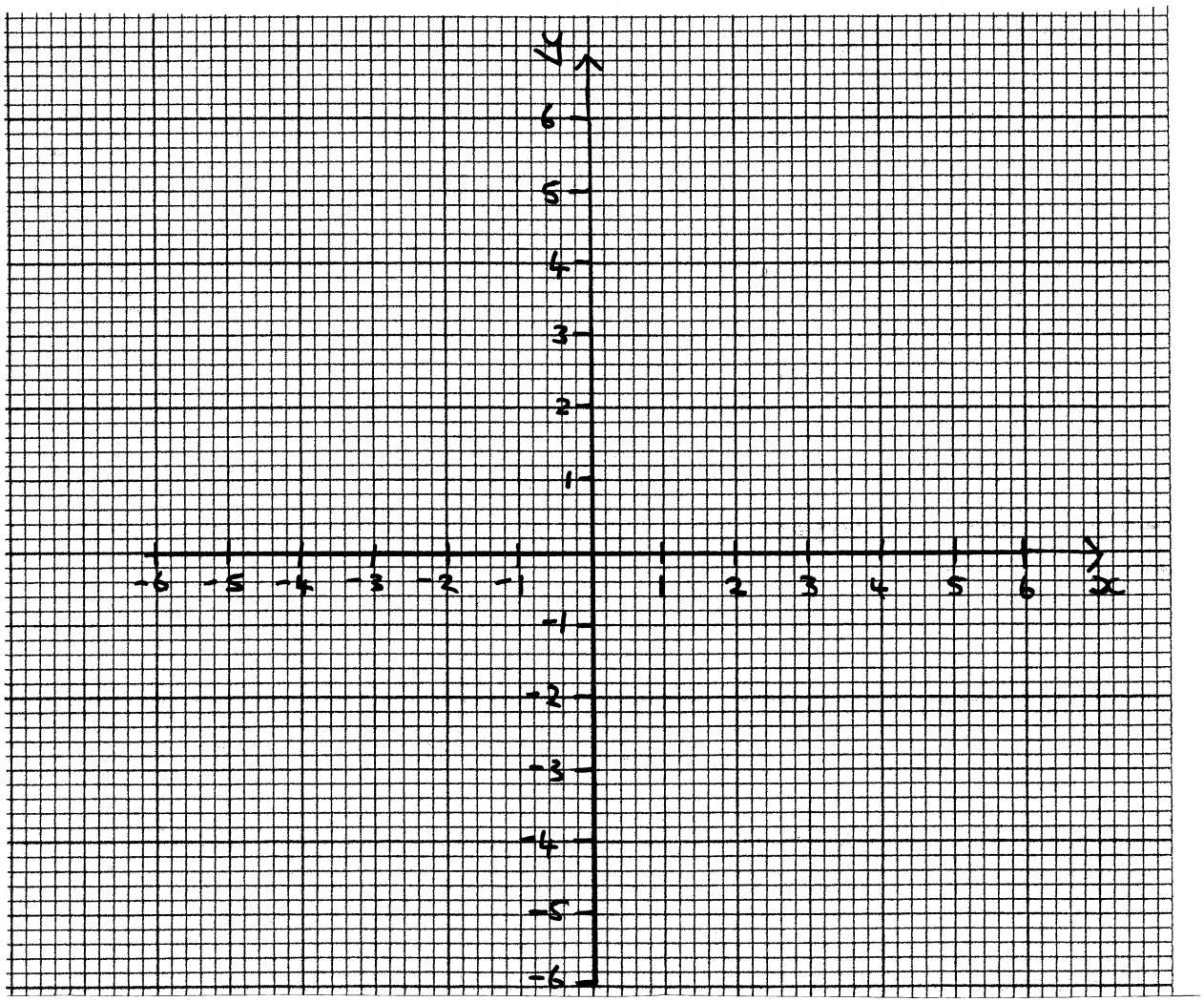
a] Write the rule as an equation.

_____

b] Fill in the table below with values for this mapping.

x	y
-3	
-1	
2	
3	

c] Plot the points from the table on the graph below and then join them up to form a line.



20. In seven rounds of golf, a golfer returns scores of 72, 87, 73, 72, 86, 72, and 77.

Find the

a] mean score _____

b] modal score _____

c] median score _____

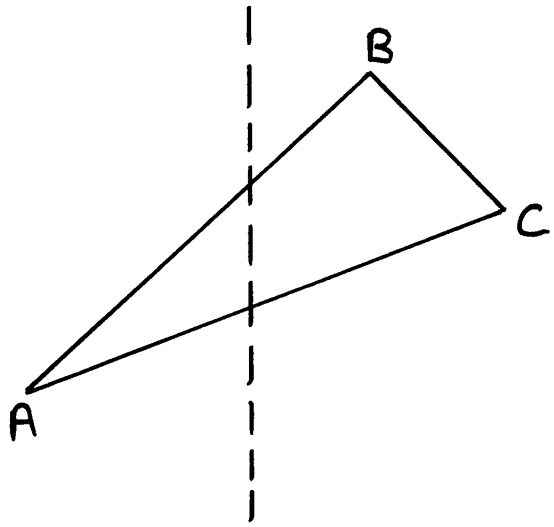
d] range _____

21. The map ratio of a map is 1 : 200000. The distance between two towns is 20 km.

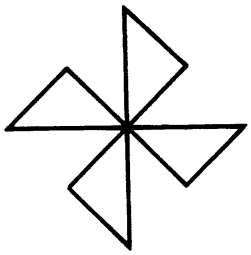
Find the distance on the map between the points representing the towns.

_____

22. Reflect the triangle ABC in the mirror line.



23.



What is the order of rotational symmetry of this shape? _____

24. A cuboid is 6 cm by 12 cm by 12 cm.

a] How many 2 cm cubes can be cut out of the cuboid?

_____

b] How many 3 cm cubes can be cut out of the cuboid?

_____

25.

trapezium, square, kite, parallelogram, rhombus, rectangle

Choose from the list of quadrilaterals. List those which have

a] All 4 angles equal _____

_____

_____

b] 2 pairs of parallel sides _____

_____

_____

26. These are the masses of 9 plums.

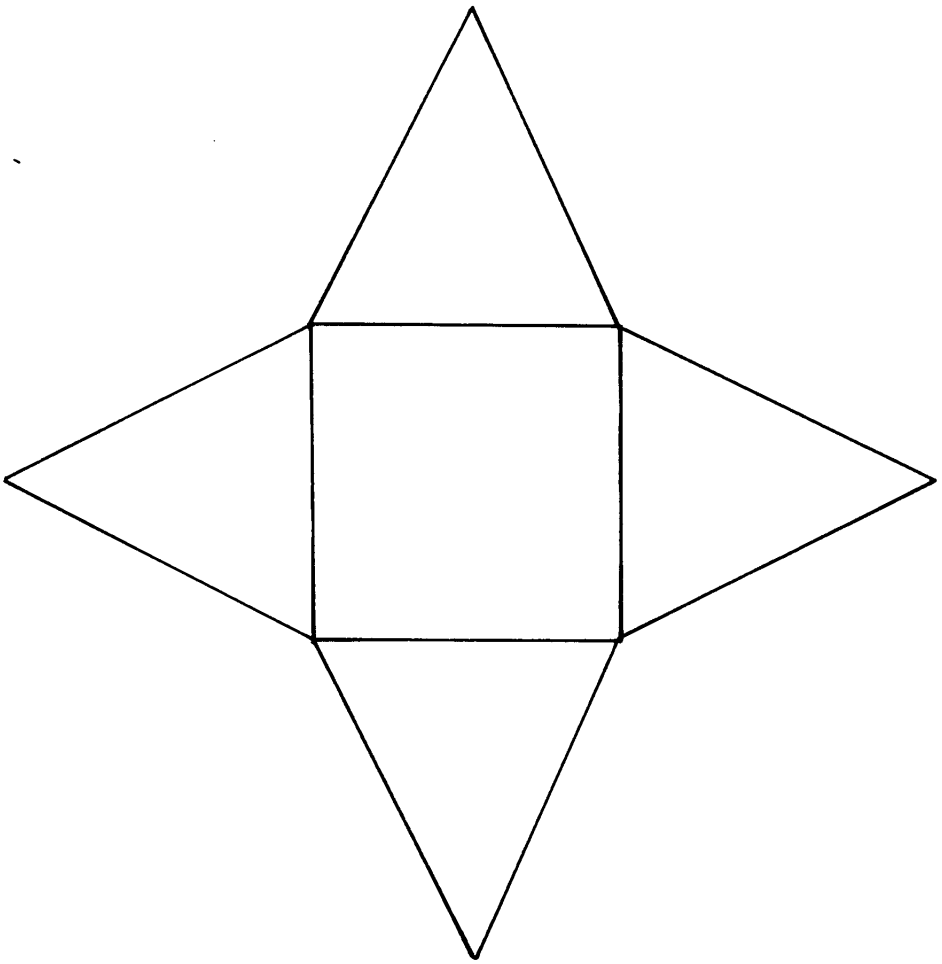
44g 56g 40g 37g 44g 39g 52g 48g 31g

Complete the frequency table.

Mass (g)	Frequency
$30 \leq m < 40$	
$40 \leq m < 50$	
$50 \leq m < 60$	

Turn-over

27. Sketch the solid which you could make from this net.



a] What is the name of the solid? _____

b] How many faces does it have? _____

c] How many edges does it have? _____

28. Express as a fraction in lowest terms:

90% = _____

29. Express as a percentage:

$\frac{7}{8}$ = _____

30. Express:

a] 4 as a percentage of 12 _____%

b] 30p as a percentage of £5 _____%

END OF EXAM