

1.

(a) Evaluate  $0.4 \times 0.2$ .

(b) In a test, Rose scored 56 marks out of 70. Express this score as a percentage.

Answer (a) ..... [1]

(b) ..... [1]

2.

(a) Simplify  $\sqrt{16} \times \sqrt[5]{32}$

(b) Simplify  $(3a^4)^2$

(c) Find the value of  $a$  when  $3^a \div 3^4 = 3^2$

Answer (a) ..... [2]

(b) ..... [1]

(c) ..... [2]

3. If  $y$  is inversely proportional to the square of  $x$ . Given that  $y = 24$  when  $x = 2$ . Find

(a) The formula for  $y$  in terms of  $x$ ,

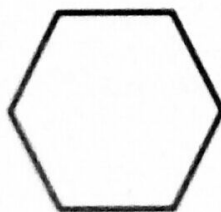
(b) The value of  $y$  when  $x = 8$ .

Answer (a) ..... [1]

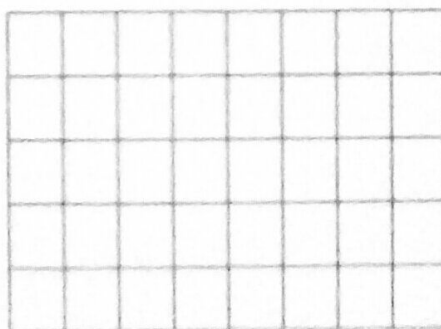
(b) ..... [2]

4.

(a) On the regular hexagon below, draw all the lines of symmetry. [1]



(b) On the grid below, draw a quadrilateral with rotational symmetry of order 2. [1]



5. Find the equation of the straight line which passes through the point  $(-2, 4)$  and is parallel to the line  $y = 2x + 5$

Answer ..... [2]

6.

(a) Find the coordinates of the point where the line  $2y=3x+15$  crosses the y-axis.

Answer..... [1]

(b) The coordinates of the point P and Q are (-1,10) and (3,4) respectively. Find

- i) the gradient of PQ
- ii) the mid- point of PQ
- iii) the triangle PQR has a line of symmetry  $y=4$ . Find the coordinate of R

Answer (b) (i) ..... [1]

(ii) ..... [1]

(iii) ..... [1]

7.

(a) When Peter went to Hong Kong, he changed £50 into \$616.

Calculate what one British pound (£) was worth in Hong Kong dollars (\$)

(b) It takes 8 hours for 5 people to paint a room. How long would it take 4 people?

(c) A shopkeeper sold a painting for \$800. He made a profit of 25% on the price he paid for it. Calculate the price he paid for the painting.

Answer (a) ..... [2]

(b) ..... [2]

(c) ..... [2]

8. Find the possible odd integer 'r' such that

$$r - 2 \leq 8 \text{ and } 4r - 1 > 19$$

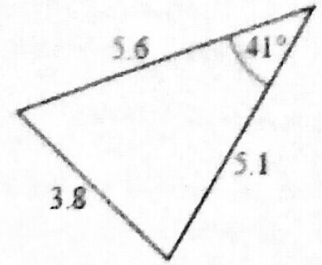
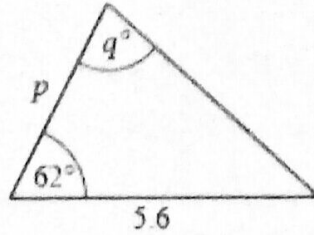
Answer ..... [3]

9. Find the air space inside a football of radius 5cm in terms of  $\pi$ . [Volume of sphere =  $\frac{4}{3} \pi r^3$ ]

Answer ..... [2]



10. These two triangles are congruent. Find  $p$  and  $q$ .

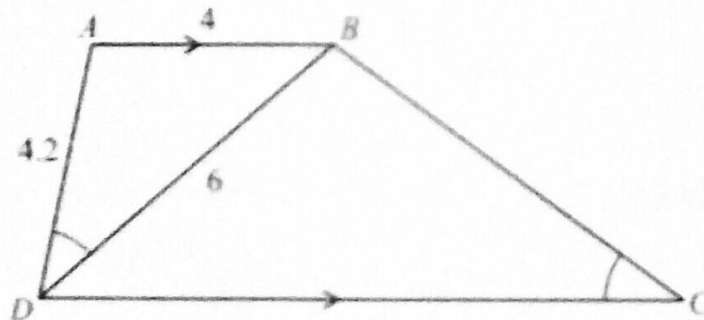


Answer  $p = \dots\dots\dots$  [1]

$q = \dots\dots\dots$  [1]

11. In the diagram,  $AB$  is parallel to  $DC$  and

$$\hat{A}DB = \hat{B}CD.$$



(a) Explain why triangles  $ABD$  and  $BDC$  are similar

[2]

(b)  $AB = 4$  cm,  $BD = 6$  cm and  $AD = 4.2$  cm.

(i) Calculate  $BC$ .

(ii) Write down the value of

$$\frac{\text{area of triangle } ABD}{\text{area of triangle } BDC}$$

Answer (b) (i) ..... [2]

(ii) ..... [1]

12.

(a) Factorise completely

(i)  $15x^2 + 10x$

(ii)  $x^2 - 2x - 15$

Answer (a) (i) ..... [1]

(ii) ..... [2]

(b) Solve  $4(x-0.3) = 3(x-0.2)$

Answer (b)  $x = \dots\dots\dots$  [2]

13.

(a) Fifty students were asked how many books they each took to school on Monday. The results are summarized in the below.

Numbers of books	0	1	2	3	4	5	6	7
Frequency	10	11	8	3	6	7	4	1

- (i) Write down the median.
- (ii) Write down the mode
- (iii) Calculate the mean number of books

Answer (a) (i)  $\dots\dots\dots$  [1]

(ii)  $\dots\dots\dots$  [1]

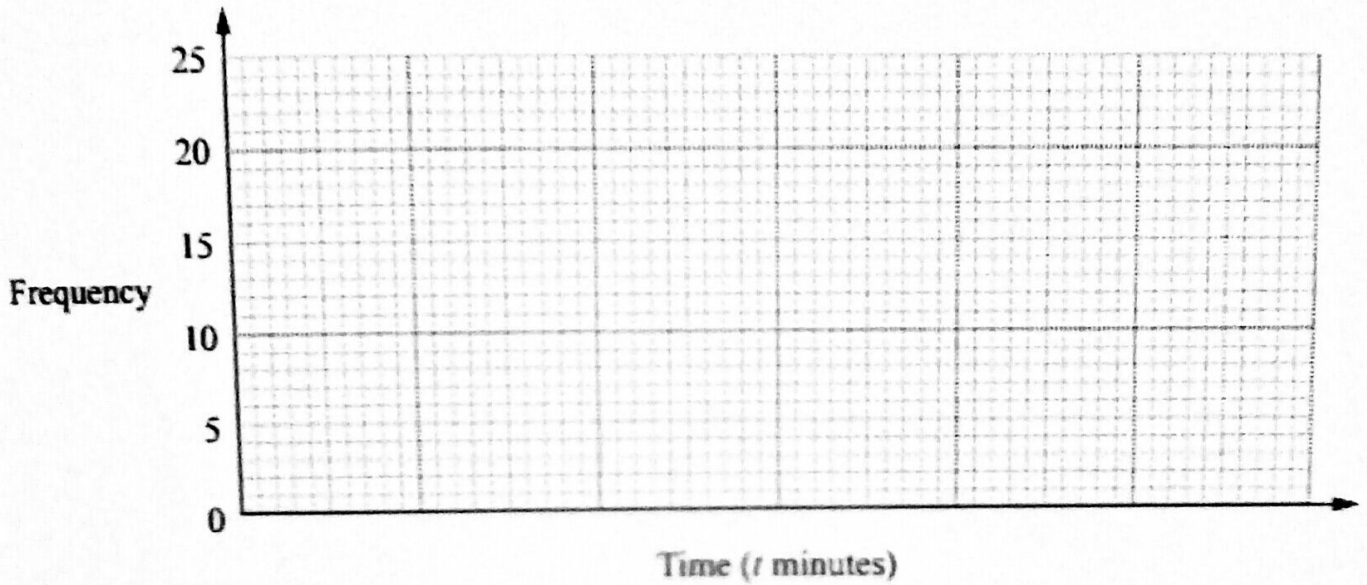
(iii)  $\dots\dots\dots$  [3]

(b) The fifty students were also asked how long they each took to travel to school.

The results are summarized in the tables below.

Time of travel ( $t$ minutes)	$4 \leq t < 6$	$6 \leq t < 8$	$8 \leq t < 10$	$10 \leq t < 12$
Frequency	21	11	13	5

Draw a frequency polygon on the grid below to illustrate this data



[3]