

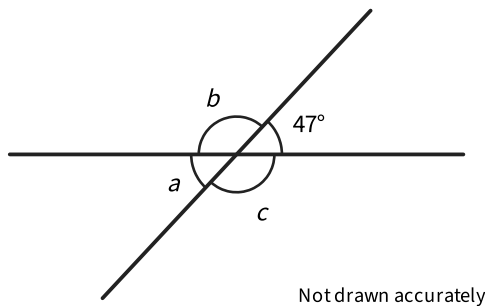
Angles and Constructions

ANSWERS

Ruler, protractor and compasses | 30 minutes | Total marks: 28

Name Class

1



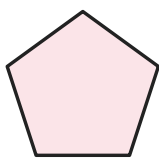
Two straight lines cross.
Write down the sizes of angles a , b and c .

$a =$ 47 °
 $b =$ 133 °
 $c =$ 133 °

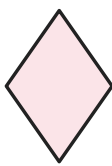
[2 marks]

All three correct (2) Two correct (1)

2



A



B

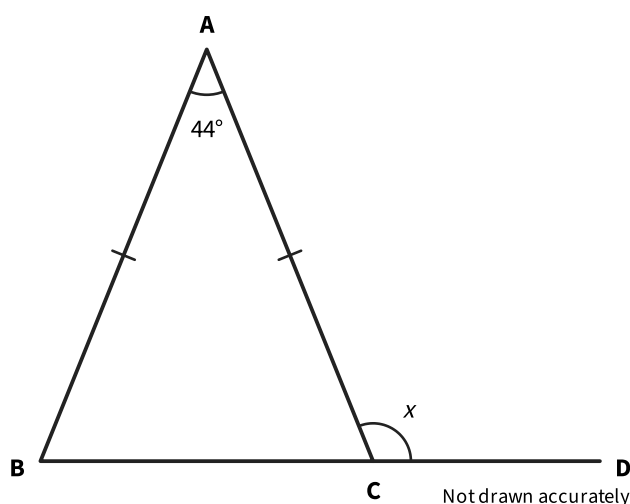
Complete the table.

Shape	Lines of symmetry	Order of rotational symmetry
A, a regular pentagon	5	5 (1)
B, a rhombus	2	2 (1)

One mark for each row with both numbers correct

[2 marks]

3



$AB = AC$ and BCD is a straight line.

Work out the size of angle x .

Give reasons for your answer.

$$\text{angle } ACB = (180 - 44) \div 2 = 68 \text{ (1)}$$

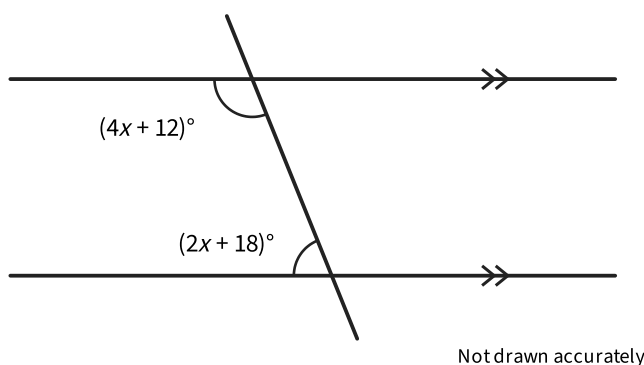
Base angles of an isosceles triangle are equal and angles on a straight line add up to 180° (1)

$$x = 112 \text{ (1)}^\circ \text{ [3 marks]}$$

4

The diagram shows two parallel lines crossed by a straight line.

(a)



Give a reason why

$$(4x + 12) + (2x + 18) = 180$$

Reason

Co-interior angles add up to 180° (1)

[1 mark]

(b) Work out the value of x .

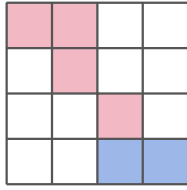
$$6x + 30 = 180 \text{ (1)}$$

$$\text{Answer } x = 25 \text{ (1)}$$

[2 marks]

5

(a)

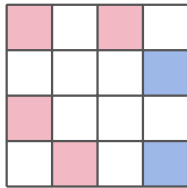


Shade exactly two more squares so that the pattern has rotational symmetry of order 2

Both correct squares shaded (1)

[1 mark]

(b)



Shade exactly two more squares so that the pattern has exactly two lines of symmetry.

Both correct squares shaded (1)

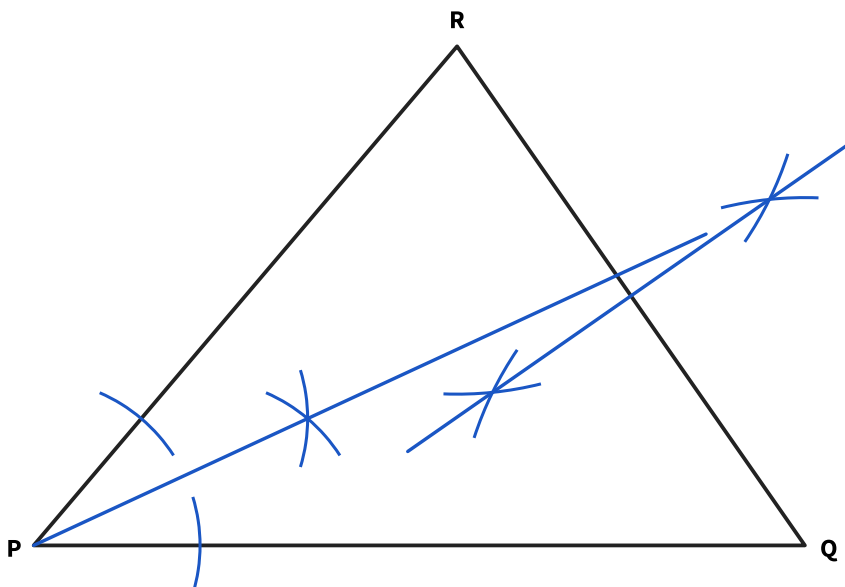
[1 mark]

6

Use a ruler and compasses for both parts. You must show your construction arcs.

(a) Construct the bisector of angle QPR.

(b) Construct the perpendicular bisector of QR.

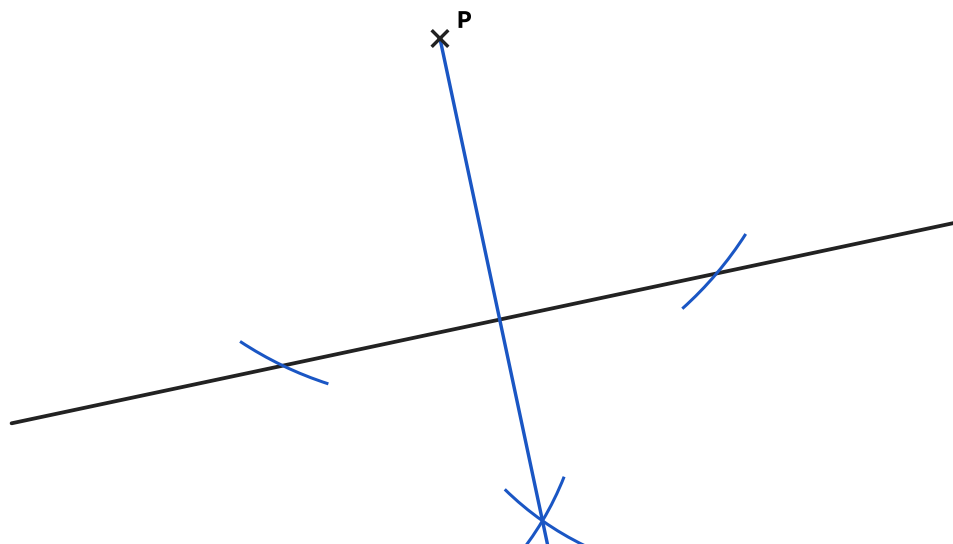


(a) Arcs on PQ and PR, then two arcs crossing (1) Bisector drawn (1) (b) Two pairs of arcs crossing (1) Perpendicular bisector drawn (1)

[4 marks]

7

- (a) Use a ruler and compasses to construct the perpendicular from the point P to the line.
You must show your construction arcs.



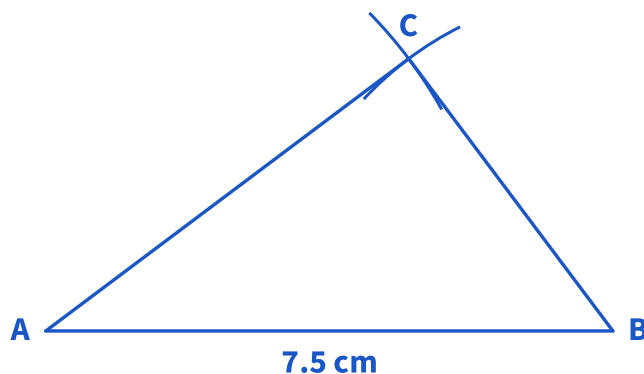
Arcs on the line from P, then two arcs crossing (1) Perpendicular drawn from P (1)

[2 marks]

- (b) Use your construction to find the shortest distance from P to the line.

Answer 3.8 (accept 3.7 to 3.9) (1) cm [1 mark]

- 8 (a) Use a ruler and compasses to construct triangle ABC with $AB = 7.5$ cm, $AC = 6$ cm and $BC = 4.5$ cm. You must show your construction arcs.



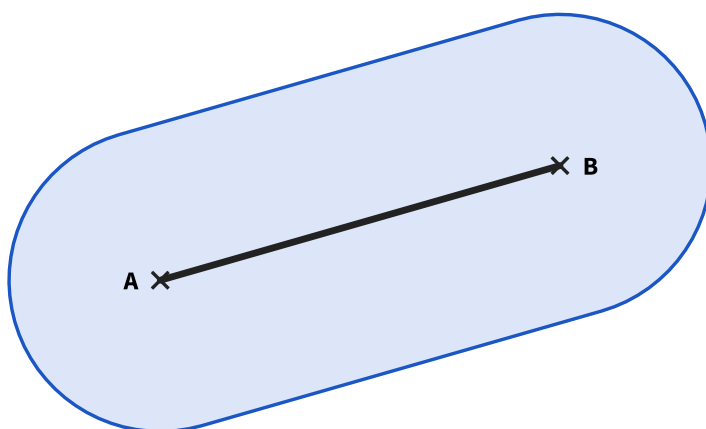
AB = 7.5 cm with arcs of radius 6 cm from A and 4.5 cm from B (1) Triangle completed (1)

[2 marks]

- (b) Measure the size of angle ACB.

Answer 90 (accept 88 to 92) (1) ° [1 mark]

- 9 AB is a straight path in a park. Lamps light up every point within 20 m of the path. Shade the region that is lit up.



Scale: 1 cm represents 10 m

Lines 2 cm from the path on both sides (1) Semicircles of radius 2 cm at both ends (1)

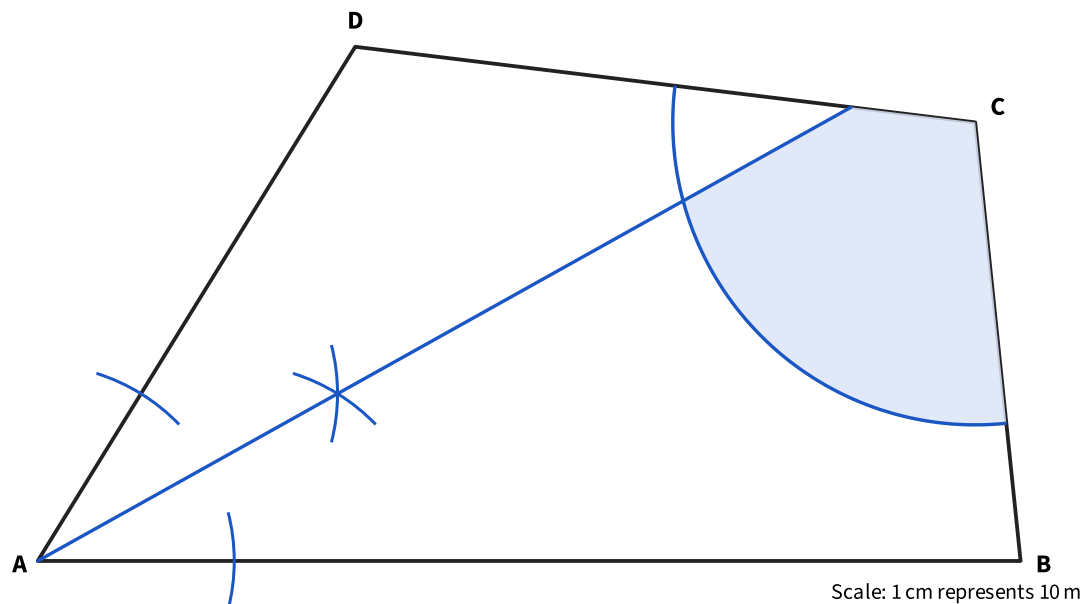
[2 marks]

10

ABCD is a field. A tree is planted in the field so that it is

- nearer to AB than to AD and
- less than 40 m from C.

Shade the region where the tree can be planted. You must show your construction arcs.



Arcs for the bisector of angle DAB (1) Bisector drawn (1) Arc of radius 4 cm centred on C (1) Correct region shaded (1)

[4 marks]

Question	Topic	RAG
1	I know vertically opposite angles and angles on a straight line	
2	I can describe line and rotational symmetry	
3	I can find angles in an isosceles triangle and give reasons	
4	I can form and solve an equation with angles on parallel lines	
5	I can complete a pattern with line or rotational symmetry	
6	I can construct an angle bisector and a perpendicular bisector	
7	I can construct a perpendicular from a point to a line and use it	
8	I can construct a triangle from three sides	
9	I can draw a locus a fixed distance from a line segment	
10	I can use loci to find a region	