
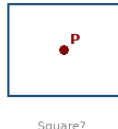
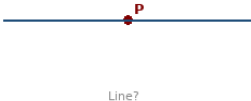
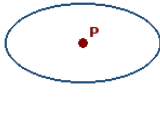


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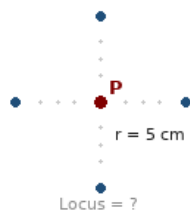
Topic 10: Loci

Instructions: Circle the letter of the BEST answer. Each correct answer = 1 mark. Time: 20 minutes.

Q1. The figure shows point O. A set of points is drawn, each exactly 3 cm from O. Which shape correctly represents this locus?

<p>A A circle of radius 3 cm centred at O</p> 	<p>B A square of side 3 cm centred at O</p> 
<p>C A straight line 3 cm away from O</p> 	<p>D An ellipse passing near O</p> 

Q2. Point P is fixed. The diagram shows four equally spaced points around P. What is the locus of ALL points exactly 5 cm from P?



<p>A A straight line</p>	<p>B A circle of radius 5 cm with centre P</p>
<p>C Two parallel lines</p>	<p>D An arc of 180°</p>

Q3. How many distinct points exist that are exactly r cm from a fixed point O?

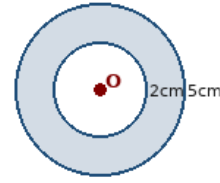
<p>A Exactly 2 points</p>	<p>B Exactly 4 points</p>
<p>C Infinitely many points — forming a circle of radius r</p>	<p>D No such points exist</p>

Q4. A circle has centre O and radius 4 cm (shown). Which statement correctly describes the locus of all points 4 cm from O?



<p>A All points inside the circle</p>	<p>B All points on the circumference of the circle</p>
<p>C All points outside the circle</p>	<p>D The single point at the centre O</p>

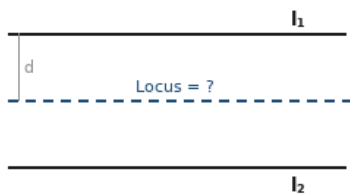
Q5. The shaded region in the figure lies between two circles of radii 2 cm and 5 cm, both centred at O. The



locus of all points MORE than 2 cm but LESS than 5 cm from O is:

A The annular (ring-shaped) region between the two circles	B A single circle of radius 3.5 cm
C The region inside the inner circle only	D The outer circle only

Q6. The diagram shows a straight line and a dashed locus. The locus of all points exactly 3 cm from a given



straight line is:

A One line parallel to the given line, at 3 cm on one side only	B Two lines parallel to the given line, each 3 cm away — one on each side
C A circle of radius 3 cm	D The perpendicular bisector of the given line

Q7. Point P moves so it is always 4 cm from line L. Which diagram CORRECTLY shows the complete locus of P?

<p>A A single dashed line 4 cm above L only</p>	<p>C Two dashed lines parallel to L, each 4 cm away</p>
<p>B A circle of radius 4 cm touching L</p>	<p>D A perpendicular dropped from P to L</p>

Q8. Line segment XY is given. A point Q moves so that its perpendicular distance from the line through XY is always d. The locus of Q is:

A The angle bisector of angle X	B A single parallel line on one side
C Two parallel lines, one on each side of XY	D A semicircle of diameter d

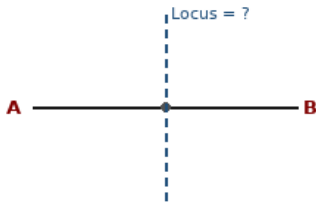
Q9. A road is drawn as a straight line on a map. A water pipe must run exactly 6 m from the road. On both sides of the road, the locus of the pipe's path is:

A One line parallel to the road, 6 m away	B A pair of parallel lines, each 6 m from the road
C A circle of diameter 6 m centred on the road	D The road line itself

Q10. The locus of points that are AT MOST 5 cm from a given line m forms:

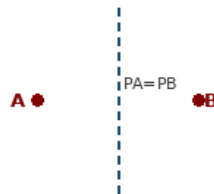
A A strip between two lines parallel to m , each 5 cm away	B A circle of radius 5 cm
C A half-plane on one side of m only	D Two separate points only

Q11. Points A and B are fixed. The diagram shows a vertical dashed line. The locus of point P such that $PA = PB$



A The line segment AB itself	B A circle passing through A and B
C The perpendicular bisector of AB	D A line parallel to AB

Q12. Two fixed points A and B are 6 cm apart (shown). Which construction correctly gives the locus of all



points equidistant from A and B ?

A Bisect angle at A	B Draw equal arcs from A and B ; join intersection points \rightarrow perpendicular bisector of AB
C Draw a circle with centre A , radius AB	D Draw a line through A parallel to AB

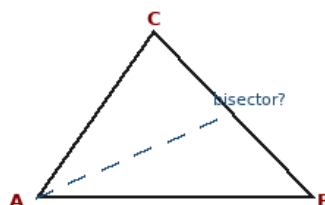
Q13. The perpendicular bisector of segment PQ is drawn. Point R lies on this bisector. Which statement **MUST** be true?

A R lies on the segment PQ between P and Q	B $RP = RQ$ (R is equidistant from P and Q)
C $RP > RQ$ always	D R must be the midpoint of PQ

Q14. Point X is equidistant from points M and N . Where does X lie?

A On the line through M and N (between them)	B At the midpoint of MN only
C On the perpendicular bisector of MN	D On a circle centred at the midpoint of MN

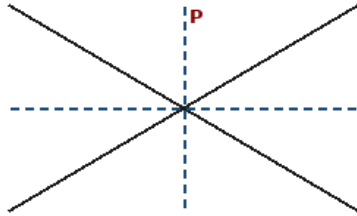
Q15. Triangle ABC is shown. The dashed line is drawn from vertex A . The locus of points inside triangle ABC



equidistant from vertices A and B lies on part of:

A The angle bisector from vertex C	B The perpendicular bisector of side AB
C The median from vertex C	D The altitude from vertex A

Q16. Two straight lines intersect at point V. The diagram shows dashed lines through V. The locus of points



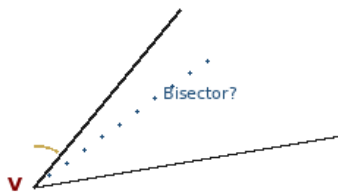
equidistant from both original lines is:

A A single line through V perpendicular to both	B Two angle bisectors of the angles formed at V
C A circle centred at V	D A line parallel to one of the given lines

Q17. Lines p and q intersect at point O. Point X is equidistant from both lines. Point X MUST lie on:

A A circle centred at O	B The perpendicular bisector of the segment joining p and q
C One of the two angle bisectors at O	D A line parallel to p through O

Q18. The figure shows two arms meeting at vertex V with a dashed bisector. When two lines intersect, the



locus of equidistant points bisects:

A Only the two acute angles formed at V	B All four angles at V — giving two perpendicular bisectors
C Only the two obtuse angles at V	D None of the angles — the locus is a circle

Q19. To find a point P that is BOTH 3 cm from fixed point A AND equidistant from two intersecting lines m and n (meeting at O), you should:

A Draw a circle of radius 3 cm at A; intersect with the angle bisectors of m and n	B Draw a circle of radius 3 cm at O; intersect with the perpendicular bisector of A
C Draw a circle at A; intersect with line m only	D Draw the perpendicular bisector of segment A; intersect with line n

Q20. A treasure is buried at a point that is 4 m from a fixed tree T AND equidistant from two crossing paths. How many possible positions for the treasure can exist?

A Exactly 1 position always	B Exactly 2 positions (circle intersects one bisector only)
C Up to 4 positions (circle can intersect both angle bisectors, giving up to 2 pts each)	D Infinitely many positions

Best of luck!