MATHS

BOOKS - NCERT EXEMPLAR

SYMMETRY AND PRACTICAL GEOMETRY

Solved Examples M C Q

1. Which of the following letters does not have any line of symmetry?

A. E

B. T

C. N

D. X

Answer: C

Watch Video Solution

2. Which of the following angles cannot be constructed using ruler and compasses?

A. 75°

B. 15°

C. 135°

D. 85°

Answer: D

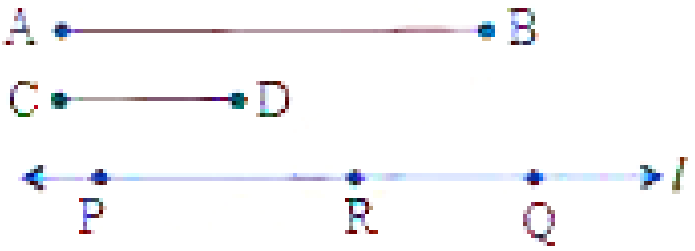
Watch Video Solution

Solved Examples In Examples 3 To 5 Fill In The Blanks So That The Statements Are True

1. If B is the image of A in line l and D is the image of C in line l, then AC = _____.

Watch Video Solution

2. In Fig. 9.1, the line segments PQ and RQ have been marked on a line l such that PQ = AB and RQ = CD. Then AB – CD =_____.



Watch Video Solution

3. The number of scales in a protractor for measuring the angles is _____.

Watch Video Solution

Solved Examples True Or False

1. Using the set squares $30^\circ - 60^\circ$ and $45^\circ - 45^\circ - 90^\circ$ we can draw an angle of 75°

View Text Solution

2. A circle has only 8 lines of symmetry.

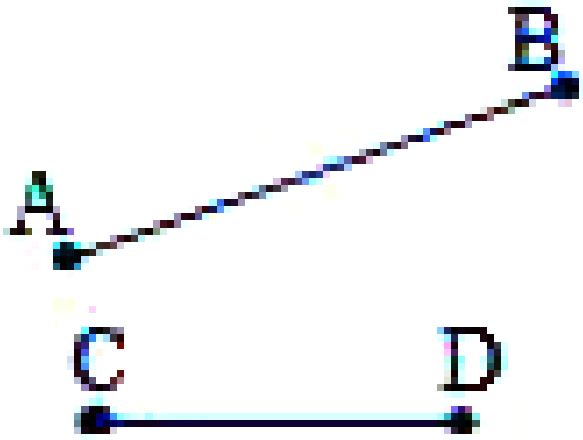
Watch Video Solution

Solved Examples

1. Write the letters of the word ALGEBRA which have no line of symmetry

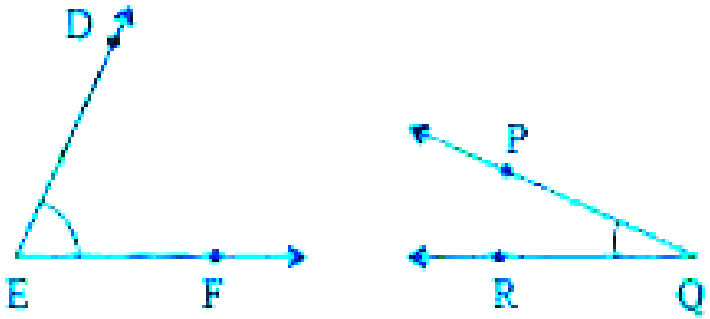
Watch Video Solution

2. Draw a line segment equal to the sum of two line segments given in Fig.



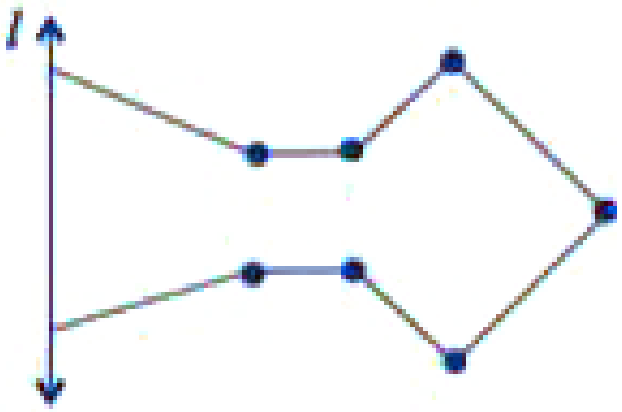
Watch Video Solution

3. Draw an angle equal to the difference of two angles given in Fig.



Watch Video Solution

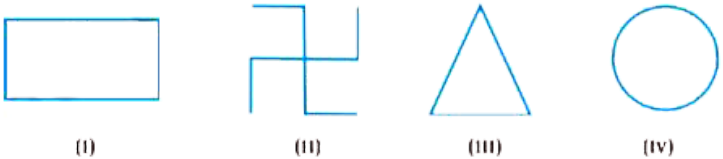
4. Complete Fig. 9.7 so that l is the line of symmetry of the completed figure.



Watch Video Solution

Exercise M C Q

1. In the following figures, the figure that is not symmetric with respect to any line is:



A. (i)

B. (ii)

C. (iii)

D. (iv)

Answer:

Watch Video Solution

2. The number of lines of symmetry in a scalene triangle is

A. 0

B. 1

C. 2

D. 3

Answer:

Watch Video Solution

3. The number of lines of symmetry in a circle is

A. 0

B. 2

C. 4

D. more than 4

Answer:

Watch Video Solution

4. Which of the following letters does not have the vertical line of symmetry?

A. M

B. H

C. E

D. V

Answer:

Watch Video Solution

5. Which of the following letters have both horizontal and vertical lines of symmetry?

A. X

B. E

C. M

D. K

Answer:

Watch Video Solution

6. Which of the following letters does not have any line of symmetry?

A. M

B. S

C. K

D. H

Answer:

Watch Video Solution

7. Which of the following letters has only one line of symmetry?

A. H

B. X

C. Z

D. T

Answer:

Watch Video Solution

8. The instrument to measure an angle is a

A. Ruler

B. Protractor

C. Divider

D. Compasses

Answer:

Watch Video Solution

9. The instrument to draw a circle is

A. Ruler

B. Protractor

C. Divider

D. Compasses

Answer:

Watch Video Solution

10. Number of set squares in the geometry box is

A. 0

B. 1

C. 2

D. 3

Answer:

Watch Video Solution

11. The number of lines of symmetry in a ruler is

A. 0

B. 1

C. 2

D. 4

Answer:

Watch Video Solution

12. The number of lines of symmetry in a divider is

A. 0

B. 1

C. 2

D. 3

Answer:

 Watch Video Solution

13. The number of lines of symmetry in compasses is

A. 0

B. 1

C. 2

D. 3

Answer:

Watch Video Solution

14. The number of lines of symmetry in a protractor is

A. 0

B. 1

C. 2

D. more than 2

Answer:

 Watch Video Solution

15. The number of lines of symmetry in a $45^\circ - 45^\circ - 90^\circ$ set - square is

A. 0

B. 1

C. 2

D. 3

Answer:

Watch Video Solution

16. The number of lines of symmetry in a $30^\circ - 60^\circ - 90^\circ$ set square is

A. 0

B. 1

C. 2

D. 3

Answer:

Watch Video Solution

17. The instrument in the geometry box having the shape of a triangle is called a

A. Protractor

B. Compasses

C. Divider

D. Set-square

Answer:

Watch Video Solution

Exercise In Questions 18 To 42 Fill In The Blanks To Make The Statements True

1. The distance of the image of a point (or an object) from the line of symmetry (mirror) is _____ as that of the point (object) from the line (mirror).

Watch Video Solution

2. The number of lines of symmetry in a picture of Taj Mahal is _____.

Watch Video Solution

3. The number of lines of symmetry in a rectangle and a rhombus are _____ (equal/unequal).

Watch Video Solution

4. The number of lines of symmetry in a rectangle and a square are_____ (equal/unequal).

Watch Video Solution

5. If a line segment of length 5cm is reflected in a line of symmetry (mirror), then its reflection (image) is a _____ of length _____.

Watch Video Solution

6. If an angle of measure 80° is reflected in a line of symmetry, then the reflection is an _____ of measure _____.

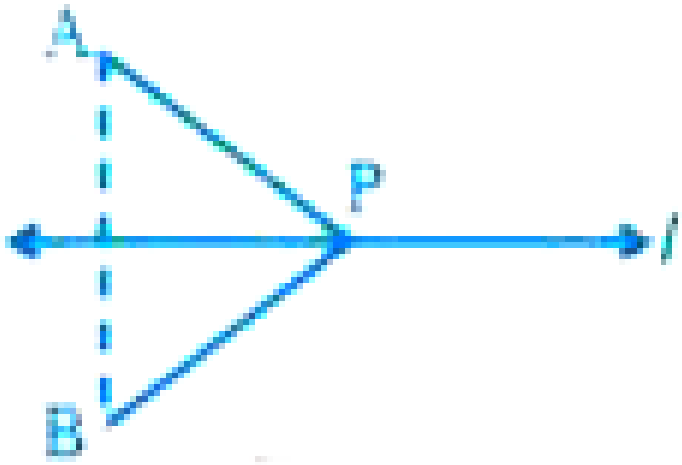
Watch Video Solution

7. The image of a point lying on a line l with respect to the line of symmetry l lies on _____.

Watch Video Solution

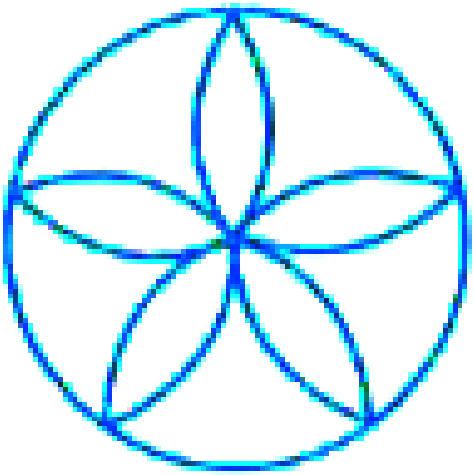
8. If B is the image of the point A with respect to the line l and P is any point lying on l, then the lengths of line segments PA and PB are

_____.



Watch Video Solution

9. The number of lines of symmetry in Fig. 9.11 is_____.



Watch Video Solution

10. The common properties in the two set-squares of a geometry box are that they have a _____ angle and they are of the shape of a _____.

Watch Video Solution

11. The digits having only two lines of symmetry are_____ and _____.

Watch Video Solution

12. The digit having only one line of symmetry is _____.

Watch Video Solution

13. The number of digits having no line of symmetry is_____.

Watch Video Solution

14. The number of capital letters of the English alphabets having only vertical line of symmetry is_____.

Watch Video Solution

15. The number of capital letters of the English alphabets having only horizontal line of symmetry is_____.

Watch Video Solution

16. The number of capital letters of the English alphabets having both horizontal and vertical lines of symmetry is_____.

Watch Video Solution

17. The number of capital letters of the English alphabets having no line of symmetry is_____.

Watch Video Solution

18. The line of symmetry of a line segment is the _____ bisector of the line segment.

Watch Video Solution

19. The number of lines of symmetry in a regular hexagon is _____.

Watch Video Solution

20. The number of lines of symmetry in a regular polygon of n sides is_____.

Watch Video Solution

21. A protractor has _____ line/lines of symmetry.

Watch Video Solution

22. A $30^\circ - 60^\circ - 90^\circ$ set - square has _____line / lines of symmetry

Watch Video Solution

23. A $45^\circ - 45^\circ - 90^\circ$ set - square has _____line / lines of symmetry

Watch Video Solution

24. A rhombus is symmetrical about

Watch Video Solution

25. A rectangle is symmetrical about the lines joining the _____ of the opposite sides.

Watch Video Solution

Exercise In Questions 43 61 State Whether The Statements Are True T Or False F

1. A right triangle can have at most one line of symmetry.

Watch Video Solution

2. A kite has two lines of symmetry.

Watch Video Solution

3. A parallelogram has no line of symmetry.

Watch Video Solution

4. If an isosceles triangle has more than one line of symmetry, then it need not be an equilateral triangle.

Watch Video Solution

5. If a rectangle has more than two lines of symmetry, then it must be a square.

Watch Video Solution

6. With ruler and compasses, we can bisect any given line segment.

Watch Video Solution

7. Only one perpendicular bisector can be drawn to a given line segment.

Watch Video Solution

8. Two perpendiculars can be drawn to a given line from a point not lying on it.

Watch Video Solution

9. With a given centre and a given radius, only one circle can be drawn.

Watch Video Solution

10. Using only the two set-squares of the geometry box, an angle of 40° can be drawn.

Watch Video Solution

11. Using only the two set-squares of the geometry box, an angle of 15° can be drawn.

Watch Video Solution

12. If an isosceles triangle has more than one line of symmetry, then it must be an equilateral triangle.

Watch Video Solution

13. A square and a rectangle have the same number of lines of symmetry.

Watch Video Solution

14. A circle has only 16 lines of symmetry.

Watch Video Solution

15. A $45^\circ - 45^\circ - 90^\circ$ set-square and a protractor have the same number of lines of

symmetry

Watch Video Solution

16. It is possible to draw two bisectors of a given angle.

Watch Video Solution

17. A regular octagon has 10 lines of symmetry.

Watch Video Solution

18. Infinitely many perpendiculars can be drawn to a given ray.

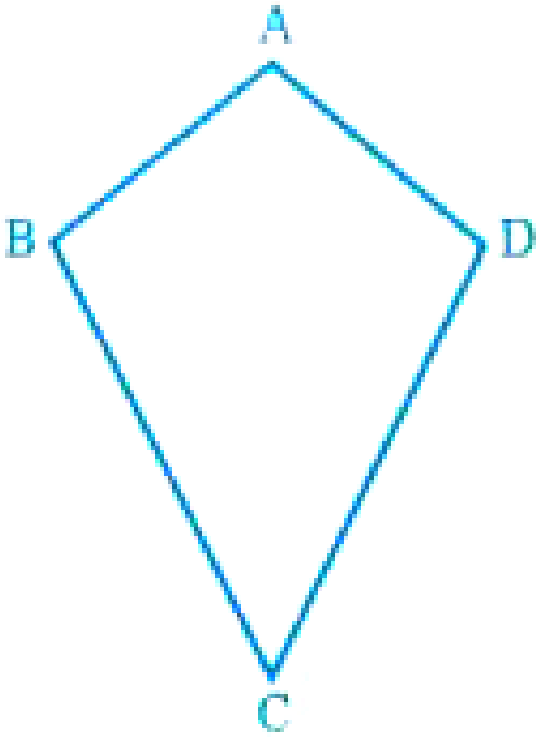
Watch Video Solution

19. Infinitely many perpendicular bisectors can be drawn to a given ray.

Watch Video Solution

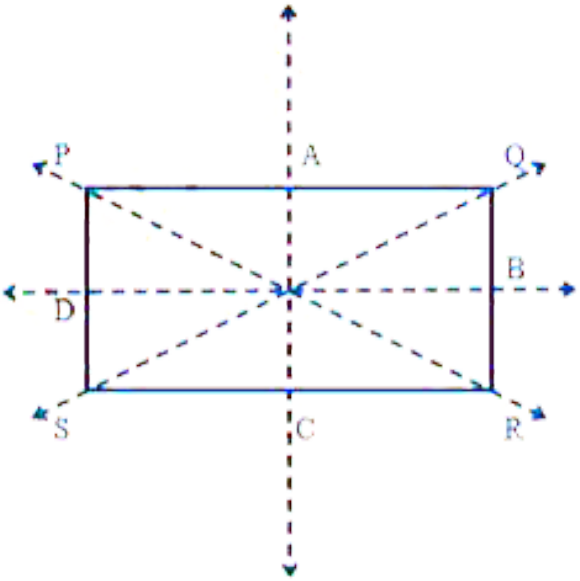
Exercise

1. Is there any line of symmetry in the Fig? If yes, draw all the lines of symmetry



Watch Video Solution

2. PQRS is a rectangle. State the lines of symmetry of the rectangle.



Watch Video Solution

3. Write all the capital letters of the English alphabets which have more than one lines of symmetry.

Watch Video Solution

4. Write the letters of the word 'MATHEMATICS' which have no line of symmetry.

Watch Video Solution

5. Write the number of lines of symmetry in each letter of the word 'SYMMETRY'.

Watch Video Solution

6. Match the following:

Shape	Number of lines of symmetry
(i) Isosceles triangle	(a) 6
(ii) Square	(b) 5
(iii) Kite	(c) 4
(iv) Equilateral triangle	(d) 3
(v) Rectangle	(e) 2
(vi) Regular hexagon	(f) 1
(vii) Scalene triangle	(g) 0

Watch Video Solution

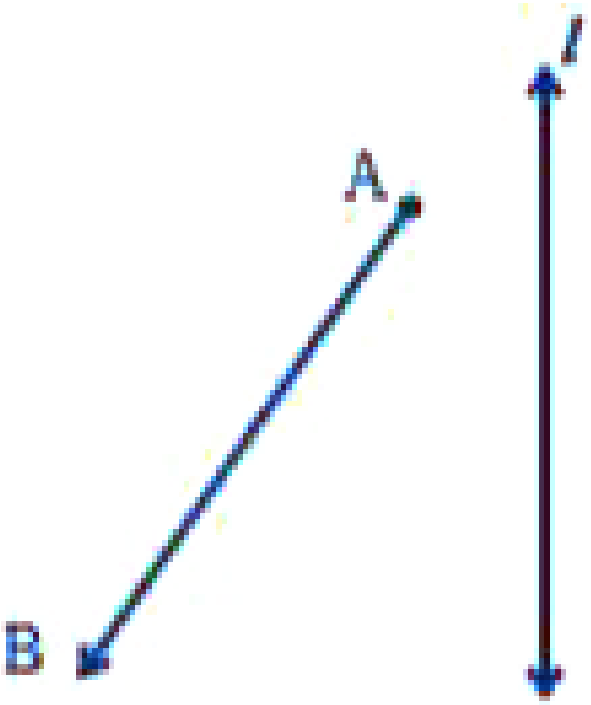
7. Open your geometry box. There are some drawing tools. Observe them and complete the following table:

Name of the tool	Number of lines of symmetry
(i) The Ruler	_____
(ii) The Divider	_____
(iii) The Compasses	_____
(iv) The Protactor	_____
(v) Triangular piece with two equal sides	_____
(vi) Triangular piece with unequal sides	_____

Watch Video Solution

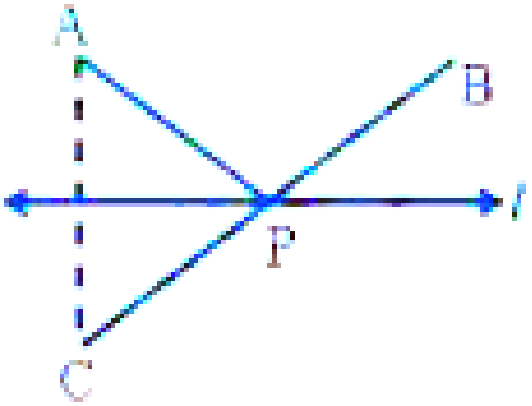
8. Draw the images of points A and B in line l and name them as A' and B' respectively.

Measure AB and A' B'. Are they equal?



Watch Video Solution

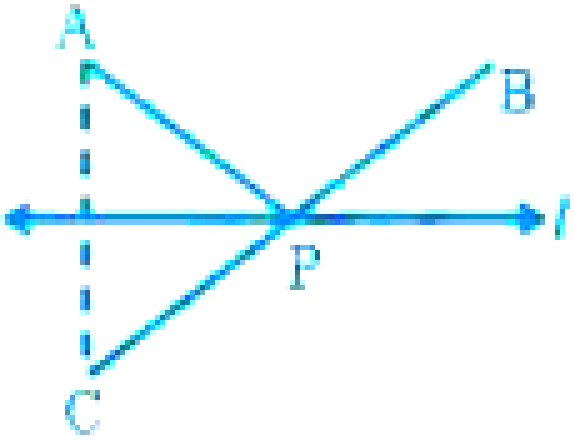
9. The point C is the image of point A in line l and line segment BC intersects the line l at P.



Is the image of P in line l the point P itself ?

Watch Video Solution

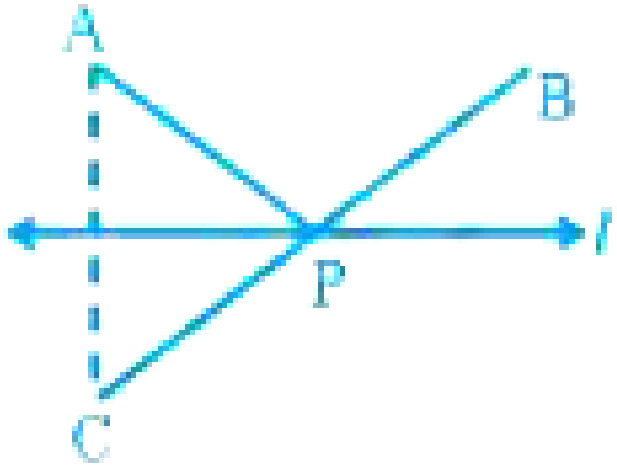
10. The point C is the image of point A in line l and line segment BC intersects the line l at P.



Is PA = PC ?

Watch Video Solution

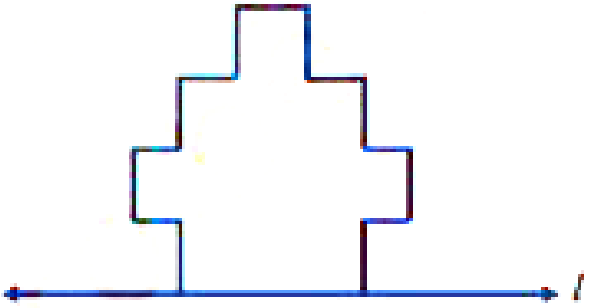
11. The point C is the image of point A in line l and line segment BC intersects the line l at P.



Is PA + PB = PC + PB ?

Watch Video Solution

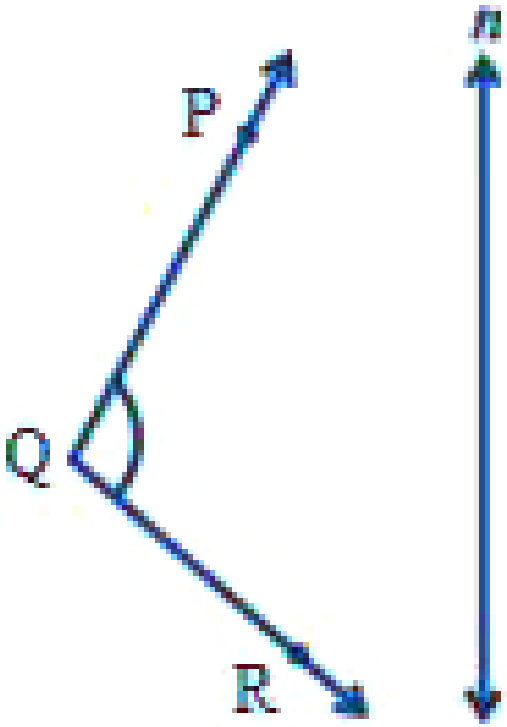
12. Complete the figure so that line I becomes the line of symmetry of the whole figure



Watch Video Solution

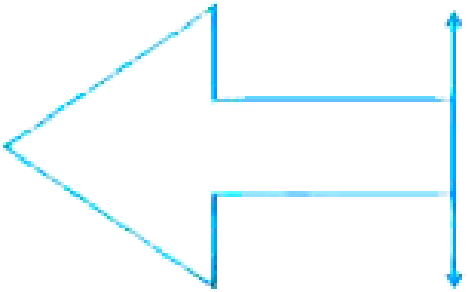
13. Draw the images P' , Q' and R' of the point P, Q and R respectively in the line n (Fig . 9. 18). Join P' Q' and Q' R' to form an angle P' Q' R' Measure $\angle PQR$ and $\angle P'Q'R'$. Are the two

angles equal ?



Watch Video Solution

14. Complete Figure by taking l as the line of symmetry of the whole figure.



Watch Video Solution

15. Draw a line segment of length 7cm. Draw its perpendicular bisector, using ruler and compasses.

Watch Video Solution

16. Draw a line segment of length 6.5cm and divide it into four equal parts, using ruler and compasses.

Watch Video Solution

17. Draw an angle of 140° with the help of a protractor and bisect it using ruler and compasses.

Watch Video Solution

18. Draw an angle of 65° and draw an angle equal to this angle, using ruler and compasses.

Watch Video Solution

19. Draw an angle of 80° using a protractor and divide it into four equal parts, using ruler and compasses.Check your construction by measurement.

Watch Video Solution

20. Draw a perpendicular to l through P, using (i) set squares (ii) Protractor (iii) ruler and compasses. How many such perpendiculars are you able to draw?

Watch Video Solution

21. Draw a perpendicular from P to line m, using (i) set squares (ii) Protractor (iii) ruler

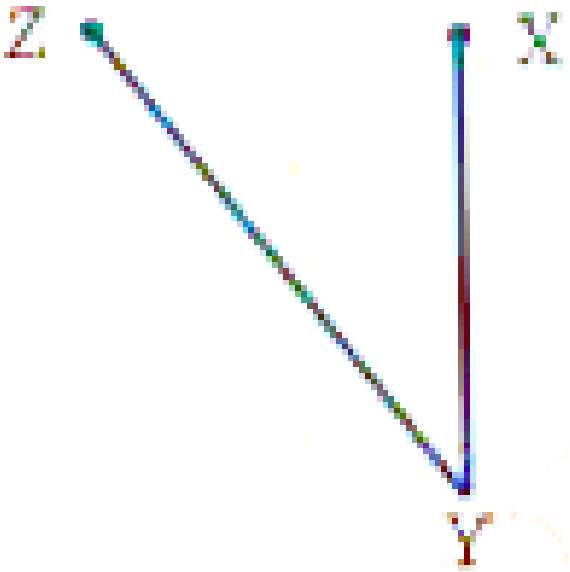
and compasses. How many such perpendiculars are you able to draw?

Watch Video Solution

22. Draw a circle of radius 6cm using ruler and compasses. Draw one of its diameters. Draw the perpendicular bisector of this diameter. Does this perpendicular bisector contain another diameter of the circle?

Watch Video Solution

23. Bisect $\angle XYZ$



Watch Video Solution

24. Draw an angle of 60° using ruler and compasses and divide it into four equal parts. Measure each part.

Watch Video Solution

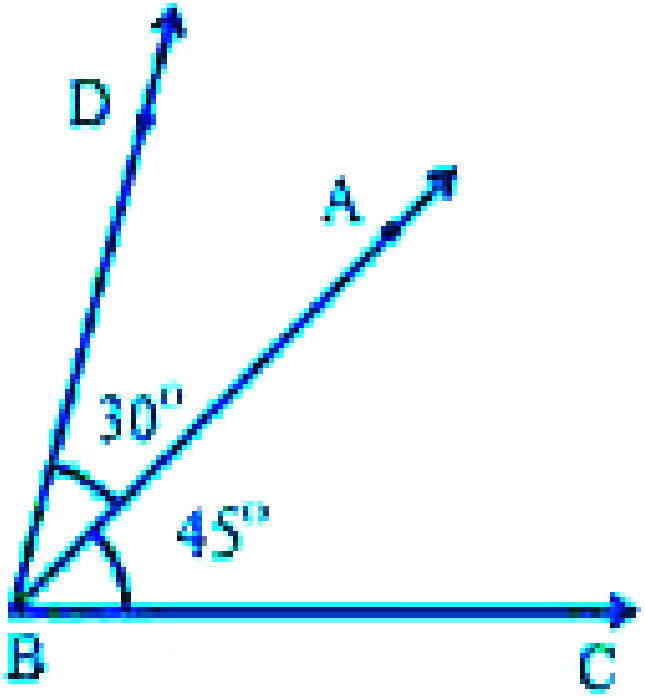
25. Bisect a straight angle, using ruler and compasses. Measure each part.

Watch Video Solution

26. Bisect a right angle, using ruler and compasses. Measure each part. Bisect each of these parts. What will be the measure of each of these parts?

Watch Video Solution

27. What is the measure of $\angle DBC$?



Watch Video Solution

28. Draw a line segment of length 6cm. Construct its perpendicular bisector. Measure the two parts of theline segment.

Watch Video Solution

29. Draw a line segment of length 10cm. Divide it into four equal parts. Measure each of these parts.

Watch Video Solution