Chapter - 2
Geometry

Exercise

In each of the questions 1 to 16, out of four options only one is correct. Write the correct answer.

1. Number of lines passing through five points such that no three of them are collinear is
A) 10 (B) 5 (C) 20 (D) 8

Solution:
There are five points out of which no three are collinear, in this situation it can be assumed to form a pentagon and hence number of lines passing through five points will be 5.

So, option (B) is correct.

2. The number of diagonals in a septagon is
(A) 21 (B) 42 (C) 7 (D) 14

Solution:
The number of diagonals in a polygon with 'n' sides respectively is given by:
$\frac{n(n-3)}{2}$

In septagon, number of sides = 7
Thus, no. of diagonals in septagon = $\frac{7(7-3)}{2}$
= 14.
So, option (D) is correct.

3. Number of line segments in Fig. 2.5 is
A) 5 (B) 10 (C) 15 (D) 20

Fig. 2.5

Solution:
It can be seen in the figure that the formed line segments are AB, AC, AD, AE, BC, BD, BE, CD, CE, DE respectively. Therefore, there are total 10 line segments in the given figure.

So, option (B) is correct.

4. Measures of the two angles between hour and minute hands of a clock at 9 O' clock are

(A) 60°, 300° (B) 270°, 90° (C) 75°, 285° (D) 30°, 330°

Solution:

At 9 O' clock, minute hand is at 12 an hour hand is at 9. So the two angles that are made by minute and an hour hand are 270° and 90° respectively.

So, option (B) is correct.

5. If a bicycle wheel has 48 spokes, then the angle between a pair of two consecutive spokes is

(A) (5(1/2)) (B) (7(1/2)) (C) (2/11) (2/15)

Solution:

The total angle covered by 48 spokes in a wheel is 360 degrees, so now the
Angle between two consecutive spokes will be the total degrees (360) divided by the number of spokes. It is given as = $\frac{360}{48}$

= 7.5

So, option (B) is correct.

6. In Fig. 2.6, ∠XYZ cannot be written as

A) ∠Y (B) ∠ZXY (C) ∠ZYX (D) ∠XYP

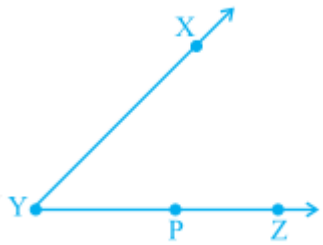


Fig. 2.6

Solution:

∠XYZ is clearly the angle ∠Y in the given figure, so ∠XYZ is definitely cannot be written as ∠ZXY as this angle represents ∠X in the given figure.

So, option (B) is correct.

7. In Fig 2.7, if point a is shifted to point B along the ray PX such that PB = 2PA, then the measure of ∠BPY is

(A) greater than 45° (B) 45° (C) less than 45° (D) 90°

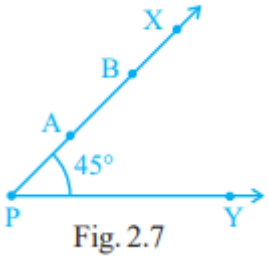


Fig. 2.7

Solution:
If point A is shifted to point B along the ray PX such that PB = 2PA, then
∠BPY will be equal to ∠APY = 45°.

So option (B) is correct.

8. The number of angles in Fig. 2.8 is
(A) 3 (B) 4 (C) 5 (D) 6

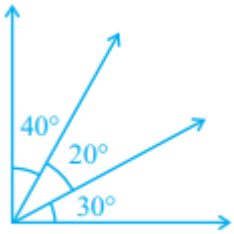


Fig. 2.8

Solution:
As seen in the figure, the total no. of angles formed are 6. The names of angles formed in the given figure are ∠AOB, ∠AOC, ∠AOD, ∠BOC, ∠BOD and ∠COD.

So option (D) is correct.

9. The number of obtuse angles in Fig. 2.9 is
A) 2 (B) 3 (C) 4 (D) 5

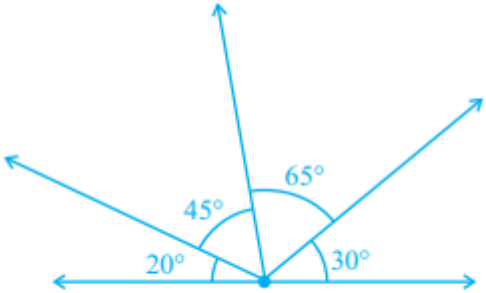
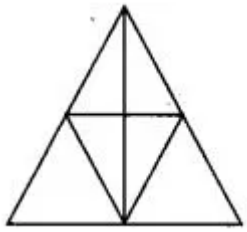


Fig. 2.9

Solution:
The obtuse angles formed in the
given figure are
$\angle AOD = 20° + 45° + 65° = 130°$
$\angle BOD = 45° + 65° = 110°$, $\angle COE = 65° + 30° = 95°$ and $\angle BOE = 45° + 65° + 30° = 140°$
Thus, there are total 4 obtuse angles formed.

So option (C) is correct.

10. The number of triangles in Fig. 2.10 is
(A) 10 (B) 12 (C) 13 (D) 14



Solution:
The names of triangles formed in the given figure are
ΔABC, ΔABD, ΔADC, ΔAFG, ΔAEG, ΔAFE, ΔFGD, ΔEGD, ΔFED, ΔFBD, ΔDEC, ΔAFD, ΔAED
As seen in the figure, it is made of 13 triangles in total.

So, option (C) 13 is correct.

11. If the sum of two angles is greater than 180°, then which of the following is not possible for the two angles?
A) One obtuse angle and one acute angle
(B) One reflex angle and one acute angle
(C) Two obtuse angles
(D) Two right angles.

Solution:
Obtuse angles are the angles which are greater than 90° but less than 180°.
Here, we can see that sum of two right angles is 90°+90°=180°.
This means that sum of two right angles cannot be an obtuse angle.

So, option (D) Two right angles is correct.

12. If the sum of two angles is equal to an obtuse angle, then which of the following is not possible?
(A) One obtuse angle and one acute angle.
(B) One right angle and one acute angle.
(C) Two acute angles.

(D) Two right angles.

Solution:

Obtuse angles are the angles which are greater than 90° but less than 180°.
Here, we can see that sum of two right angles is 90°+90°=180°.
This means that sum of two right angles cannot be an obtuse angle.

So, option (D) Two right angles is correct.

13. A polygon has prime number of sides. Its number of sides is equal to the sum of the two least consecutive primes. The number of diagonals of the polygon is

A) 4 (B) 5 (C) 7 (D) 10

Solution:

As per given information, the polygon has prime number of sides and the number of sides is equal to the sum of two least consecutive prime numbers.
Thus it is clear that the number of sides of this polygon = 2 + 3
= 5
Which shows that the polygon is pentagon can be calculated by using following formula:
$\frac{n(n-3)}{2}$ where 'n' is no. of sides of polygon.

Therefore we have, the number of diagonals of pentagon = $\frac{n(n-3)}{2}$, where n = 5

$= \frac{5(5-3)}{2}$

$= \frac{5\times 2}{2}$

$= \frac{10}{2}$

$= 5$

So, option (B) is correct

14. In Fig. 2.11, AB = BC and AD = BD = DC. The number of isosceles triangles in the figure is

A) 1 (B) 2 (C) 3 (D) 4

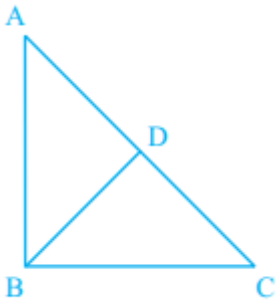


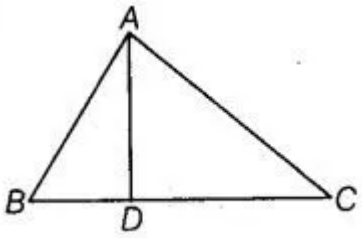
Fig. 2.11

Solution:
It is clear from the given figure that, the total number of isosceles triangle formed is 3 which are triangles ABC, ABD and BDC respectively.

We have, AB = BC and AD = BD = DC.
Δ ABD, Δ BDC and Δ ABC all are isosceles triangles.
∴ there are 3 isosceles triangles formed in the given figure.

So, option (C) is correct.

15. In Fig. 2.12, ∠BAC = 90° and AD ⊥ BC. The number of right triangles in the figure is
(A) 1 (B) 2 (C) 3 (D) 4



Solution:
It is clear from the figure that there are there in total three triangles with 90 degree angle and those are triangles ADB, ADC and BAD respectively.

We have, ∠BAC = 90° and AD ⊥ BC
∵ ∠BDA = ∠CDA = ∠BAC = 90°
∴ There are 3 right triangles formed in the given figure.

So, option (C) is correct.

16. In Fig. 2.13, PQ ⊥ RQ, PQ = 5 cm and QR = 5 cm. Then Δ PQR is
(A) a right triangle but not isosceles
(B) an isosceles right triangle
(C) isosceles but not a right triangle
(D) neither isosceles nor right triangle

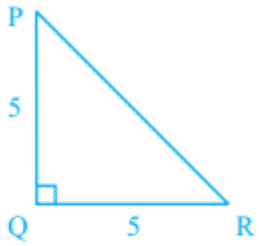


Fig. 2.13

Solution:
According to given information, the given triangle PQR possess two equal sides and one right angle. Thus, we can say that the given triangle is isosceles right triangle.

So, option (B) is correct.

In questions 17 to 31, fill in the blanks to make the statements true:

17. An angle greater than 180° and less than a complete angle is called _____.

Solution:
Reflex angle is the angle which is greater than 180° and less than a complete angle.

An angle greater than 180° and less than a complete angle is called Reflex angle.

18. The number of diagonals in a hexagon is _____.

Solution:
No. of diagonals in a polygon is given by: $\frac{n(n-3)}{2}$, where 'n' is no. of sides of a polygon.

In hexagon we have $n = 6$,

Thus no. of diagonals = $\frac{n(n-3)}{2}$

$= 9$

The number of diagonals in a hexagon is 9.

19. A pair of opposite sides of a trapezium are _____.

Solution:
In trapezium the pair of opposite sides are always parallel.

Pair of opposite sides of a trapezium are parallel.

20. In Fig. 2.14, points lying in the interior of the triangle PQR are _____, that in the exterior are _____ and that on the triangle itself are _____.

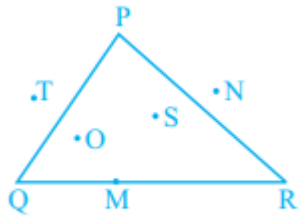


Fig. 2.14

Solution:
In Fig. 2.14, points lying in the interior of the triangle PQR are O and S, that in the exterior are T and S and that on the triangle itself are P, Q, M and R.

21. in Fig. 2.15, points A, B, C, D and E are collinear such that AB = BC = CD = DE. Then
(a) AD = AB + _____
(b) AD = AC + _____
(c) mid point of AE is _____
(d) mid point of CE is _____
(e) AE = _____ × AB.

Fig. 2.15

Solution:
In Fig. 2.15, points A, B, C, D and E are collinear such that AB = BC = CD = DE. Then

(a) AD = AB +BD

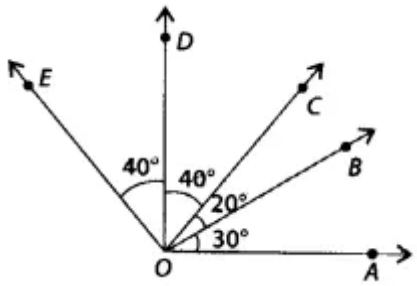
(b) AD = AC + CD

(c) mid point of AE is C

(d) mid point of CE is D

(e) AE = 4 × AB.

22. In Fig. 2.16,
(a) ∠AOD is a/an _____ angle
(b) ∠COA is a/an _____ angle
(c) ∠AOE is a/an _____ angle



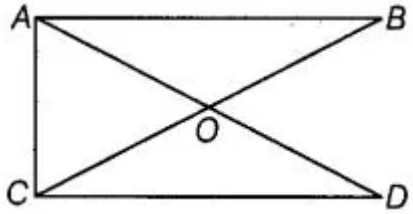
Solution:
In Fig. 2.16,

(a) ∠AOD is a right angle

(b) ∠COA is an acute angle

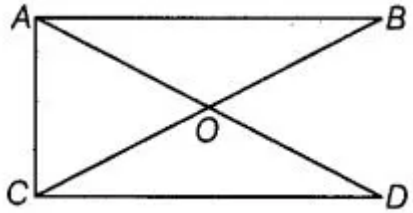
(c) ∠AOE is an obtuse angle

23. The number of triangles in Fig. 2.17 is _____. Their names are _____.



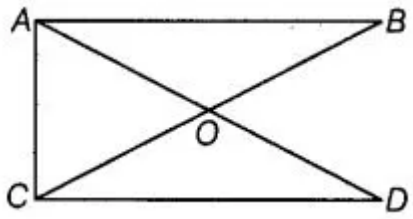
Solution:
The number of triangles in Fig. 2.17 is 5. Their names are ΔAOB, ΔCOD, ΔAOC, ΔACD and ΔCAB.

24. Number of angles less than 180° in Fig. 2.17 is _____ and their names are _____.



Solution:
Number of angles less than 180° in Fig. 2.17 is 12 and their names are ∠OAB, ∠OBA, ∠OAC, ∠OCA, ∠OCD, ∠ODC, ∠AOB, ∠AOC, ∠COD, ∠DOB, ∠BAC, ∠ACD.

25. The number of straight angles in Fig. 2.17 is _____.



Solution:
The number of straight angles in Fig. 2.17 is 4.

26. The number of right angles in a straight angle is _____ and that in a complete angle is _____.

Solution:
It is known that, angle formed by straight angle = 180 degrees and
Angle formed by right angle = 90 degrees.
This implies that number of right angles in straight angle = 180/90
= 2.
Also, complete angle = 360 degrees and
Thus number of right angles = 360/90
= 4.

The number of right angles in a straight angle is 2 and that in a complete angle is 4.

27. The number of common points in the two angles marked in Fig. 2.18 is _____.

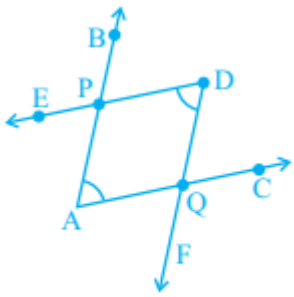


Fig. 2.18

Solution:
The number of common points in the two angles marked in Fig. 2.18 is two.

28. The number of common points in the two angles marked in Fig. 2.19 is _____.

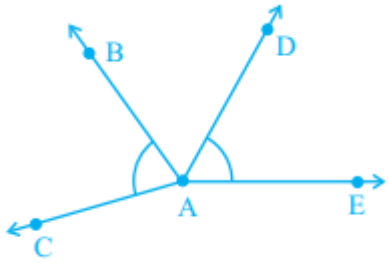
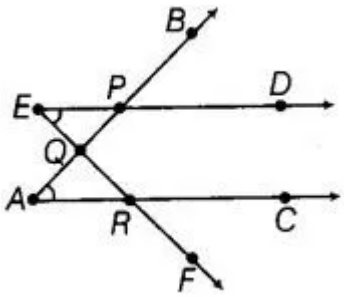


Fig. 2.19

Solution:
The number of common points in the two angles marked in Fig. 2.19 is one.

29. The number of common points in the two angles marked in Fig. 2.20 _____.



Solution:
The number of common points in the two angles marked in Fig. 2.20 Three.

30. The number of common points in the two angles marked in Fig. 2.21 is _____.

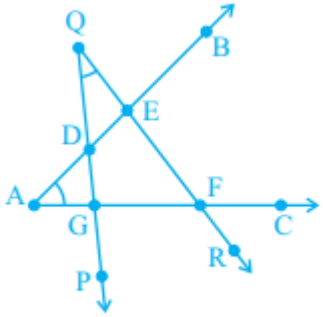


Fig. 2.21

Solution:
The number of common points in the two angles marked in Fig. 2.21 is Four.

31. The common part between the two angles BAC and DAB in Fig. 2.22 is _____.

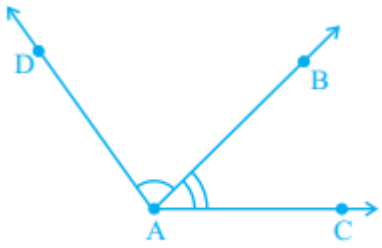


Fig. 2.22

Solution:
It can be clearly from the figure that the common part between the two angles BAC and DAB is ray AB.

The common part between the two angles BAC and DAB in Fig. 2.22 is ray AB.

State whether the statements given in questions 32 to 41 are true (T) or false (F):

32. A horizontal line and a vertical line always intersect at right angles.

Solution:
Angle formed between horizontal and vertical line whenever they intersect is always right angle.

So, the given statement is **true**.

33. If the arms of an angle on the paper are increased, the angle increases.

Solution:
If the arms of an angle on the paper are increased there will be no change in the angle formed by those arms.

So, given statement is **False**.

34. If the arms of an angle on the paper are decreased, the angle decreases.

Solution:
If the arms of an angle on the paper are decreased there will be no change in the angle formed by those arms.

So, given statement is **False**.

35. If line PQ || line m, then line segment PQ || m

Solution:
It is obvious that if line PQ || line m, then PQ will also parallel to the part of line m, thus line segment PQ || m as well.

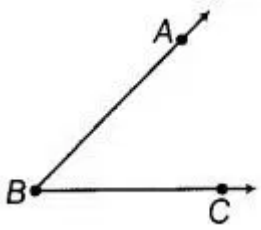
So, given statement is **true**.

36. Two parallel lines meet each other at some point.

Solution:
In case of parallel lines, they are always parallel to each other till infinity and do not meet each other at any point.

So, given statement is **False**.

37. Measures of ∠ABC and ∠CBA in Fig. 2.23 are the same.



Solution:
The angles ∠ABC and ∠CBA are basically the same ∠B, thus it is clear that the two angles are equal.

So, given statement is **True**.

38. Two line segments may intersect at two points.

Solution:
Two line segments can only intersect each other at only one point and hence, cannot intersect at two points.

So, given statement is **False**.

39. Many lines can pass through two given points.

Solution:
Through two given points only one line can pass and not multiple lines.

So, given statement is **False**.

40. Only one line can pass through a given point.

Solution:
Infinite no. of lines can pass through a given point.

So, given statement is **False**.

41. Two angles can have exactly five points in common.

Solution:
Two angles can have only three points in common.

So, given statement is **False**.

42. Name all the line segments in Fig. 2.24.

Fig. 2.24

Solution:
All the line segments in the given figure are AB, AC, AD, AE, BC, BD, BE, CD, CE, DE respectively.

43. Name the line segments shown in Fig. 2.25.

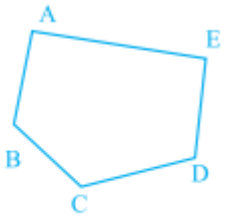
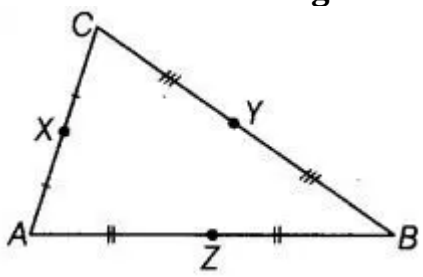


Fig. 2.25

Solution:
Line segments in given figure are AB, BC, CD, DE, EA respectively.

44. State the mid points of all the sides of Fig. 2.26.



Solution:
The sides given in the figure are AC, AB and BC respectively and the corresponding mid-points are X, Z and Y.

45. Name the vertices and the line segments in Fig. 2.27.

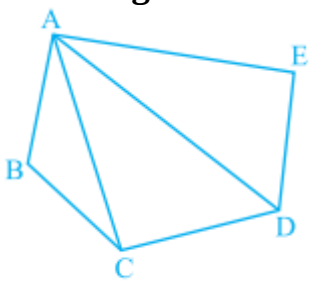


Fig. 2.27

Solution:
Vertices in the given figure are A, B, C, D, E and the line segments are AB, AC, AD, AE, BC, CD, DE respectively.

46. Write down fifteen angles (less than 180°) involved in Fig. 2.28.

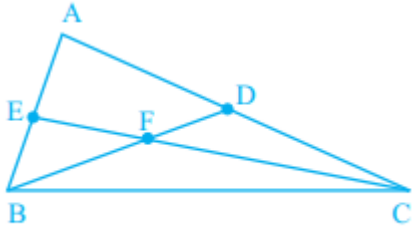


Fig. 2.28

Solution:
Fifteen angles less than 180° in the given figure are ∠EAD, ∠AEF, ∠EFD, ∠ADF, ∠DFC, ∠DCF, ∠CDF, ∠BEF, ∠BFE, ∠EBF, ∠FBC, ∠FCB, ∠BFC, ∠ABC, ∠ACB.

47. Name the following angles of Fig. 2.29, using three letters:
(a) ∠1
(b) ∠2
(c) ∠3
(d) ∠1 + ∠2
(e) ∠2 + ∠3
(f) ∠1 + ∠2 + ∠3
(g) ∠CBA – ∠1

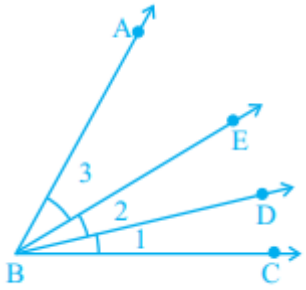


Fig. 2.29

Solution:
From the given figure, the following angles are:
(a) ∠1 = ∠CBD

(b) ∠2 = ∠DBE

(c) ∠3 = ∠EBA

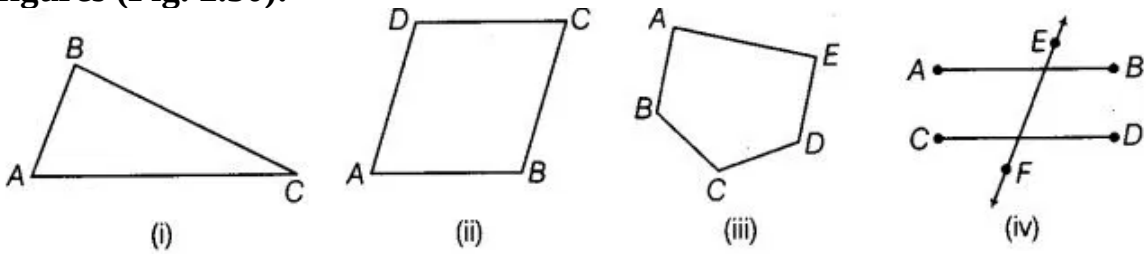
(d) ∠1 + ∠2 = ∠CBE

(e) ∠2 + ∠3 = ∠DBA

(f) ∠1 + ∠2 + ∠3 = ∠CBA

(g) ∠CBA – ∠1= ∠DBA

48. Name the points and then the line segments in each of the following figures (Fig. 2.30):



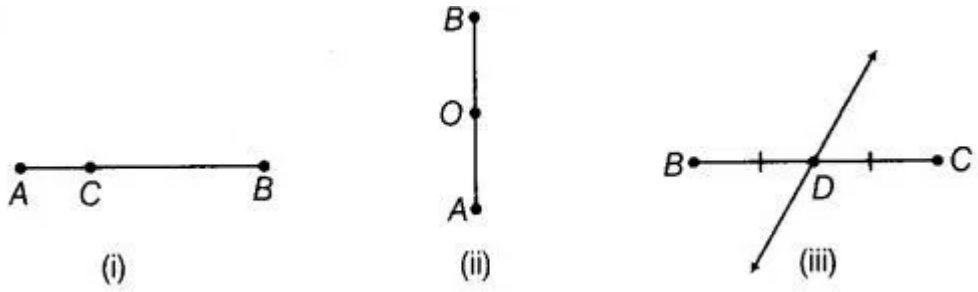
Solution:
(i) In the given figure, points are A, B, C and line segments are AB, BC, and CA respectively.

(ii) In the given figure, points are A, B, C and D and line segments are AB, BC, CD and DA respectively.

(iii) In the given figure, points are A, B, C, D, E and line segments are AB, BC, CD, DE and EA respectively.

(iv) In the given figure, points are A, B, C, D, E, F and line segments are AB, CD, and EF respectively.

49. Which points in Fig. 2.31, appear to be mid-points of the line segments? When you locate a mid-point, name the two equal line segments formed by it.



Solution:
In the given figures, point O and D in figure (ii) and (iii) appear to be mid-point of the line segments. In figure (ii) two line segments formed are AO and BO respectively and in figure (iii) two line segments formed are BD and DC respectively.

50. Is it possible for the same
(a) line segment to have two different lengths?
(b) angle to have two different measures?

Solution:
(a) No, it is not possible for a line segment to have two different lengths.

(b) No, it is not possible for an angle to have two different measures.

51. Will the measure of ∠ABC and of ∠CBD make measure of ∠ABD in Fig. 2.32?

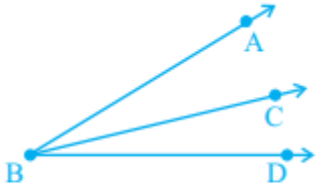
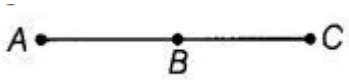


Fig. 2.32

Solution:
In the given figure, ∠ABD = sum of ∠ABC and ∠CBD respectively. So, yes in the given figure the measure of ∠ABC and of ∠CBD make measure of ∠ABD.

52. Will the lengths of line segment AB and line segment BC make the length of line segment AC in Fig. 2.33?

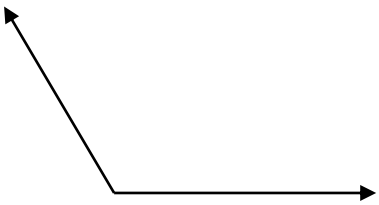


Solution:
In the given figure, length of segment AB = sum of length of AB and BC respectively. So, yes in the given figure the lengths of line segment AB and line segment BC make the length of line segment AC.

53. Draw two acute angles and one obtuse angle without using a protractor. Estimate the measures of the angles. Measure them with the help of a protractor and see how much accurate is your estimate.

Solution:
Two acute angles are as follows:

One Obtuse angle is as follows:



As measured with the protractor, measure of two acute angles drawn above are 70° and 30° and measure of obtuse angle drawn is 120° respectively.

54. Look at Fig. 2.34. Mark a point
(a) A which is in the interior of both ∠1 and ∠2.
(b) B which is in the interior of only ∠1.
(c) Point C in the interior of ∠1.
Now, state whether points B and C lie in the interior of ∠2 also.

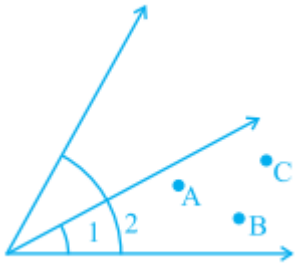


Fig. 2.34

Solution:
Yes, it can be seen clearly from the figure that points B and C lie in the interior of $\angle 2$ also.

55. Find out the incorrect statement, if any, in the following: An angle is formed when we have
(a) two rays with a common end-point
(b) two line segments with a common end-point
(c) a ray and a line segment with a common end-point

Solution:
An angle can be formed in all the mentioned above conditions and thus none of the above mentioned options is incorrect.

56. In which of the following figures (Fig. 2.35),
(a) perpendicular bisector is shown?
(b) bisector is shown?
(c) only bisector is shown?
(d) only perpendicular is shown?

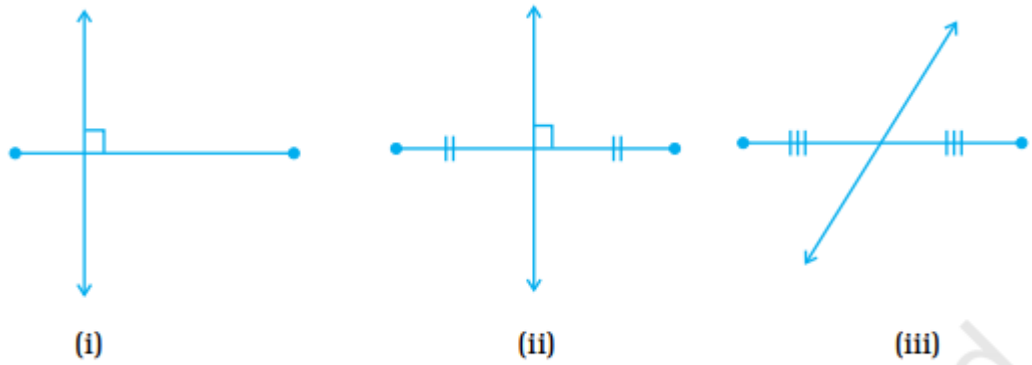


Fig. 2.35

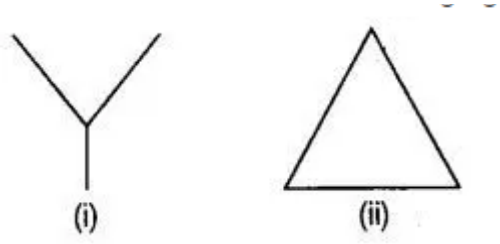
Solution:
(a) Perpendicular bisector is shown in figure (ii) only.

(b) Bisector is shown figure (ii) and (iii) respectively.

(c) Only bisector is shown in figure(iii) only.

(d) Only perpendicular is shown in figure (i) and (ii) respectively.

57. What is common in the following figures (i) and (ii) (Fig. 2.36.)?
Is Fig. 2.36 (i) that of triangle? if not, why?



Solution:
In figures (i) and (ii), the common thing is that both figures posses three line segments. Figure (i) is not of triangle as it is not a closed figure.

58. If two rays intersect, will their point of intersection be the vertex of an angle of which the rays are the two sides?

Solution:
Yes, it is true that if two rays intersect, their point of intersection will be the vertex of an angle of which the rays are the two sides.

59. In Fig. 2.37,
(a) name any four angles that appear to be acute angles.
(b) name any two angles that appear to be obtuse angles.

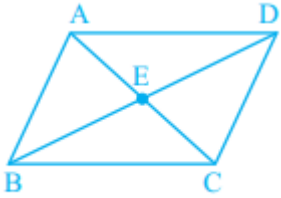


Fig. 2.37

Solution:
(a) Four angles that appear to be acute angles are ∠AEB, ∠ADE, ∠BAE and ∠BCE.

(b) Four angles that appear to be acute angles are ∠BCD and ∠BAD.

60. In Fig. 2.38,
(a) is AC + CB = AB?
(b) is AB + AC = CB?
(c) is AB + BC = CA?

Fig. 2.38

Solution:
In the given figure
(a) Yes, AC + CB = AB

(b) No, AB + AC ≠ CB

(c) No, AB + BC ≠ CA

61. In Fig. 2.39,
(a) What is AE + EC?
(b) What is AC – EC?
(c) What is BD – BE?
(d) What is BD – DE?

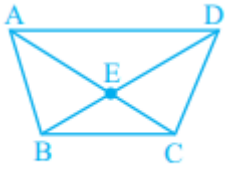


Fig. 2.39

Solution:
In given figure:
(a) AE + EC = AC

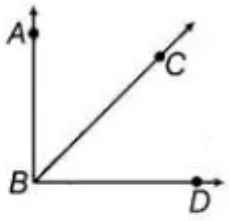
(b) AC – EC = AE

(c) BD – BE = ED

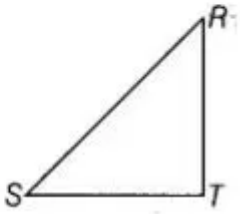
(d) BD – DE = BE

62. Using the information given, name the right angles in each part of Fig. 2.40:

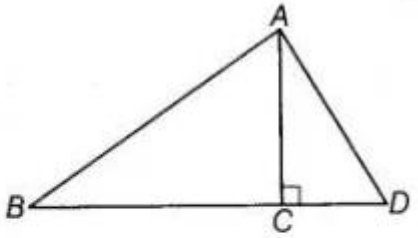
(a) $BA \perp BD$



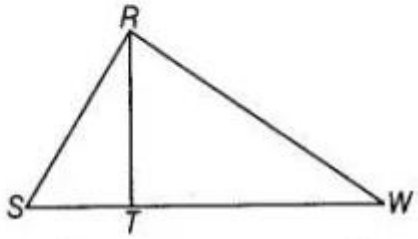
(b) $RT \perp ST$



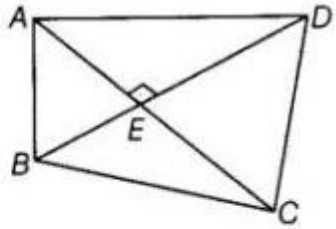
(c) $AC \perp BD$



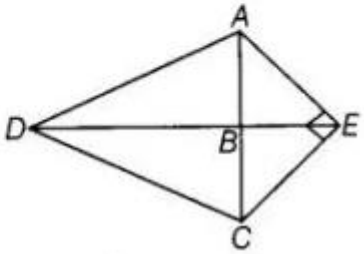
(d) $RT \perp SW$



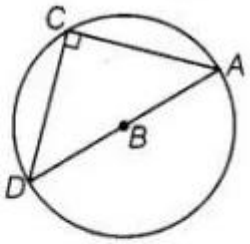
(e) $AC \perp BD$



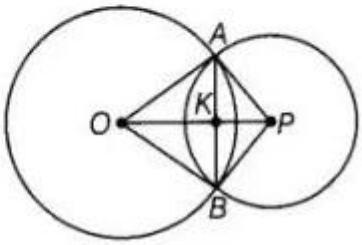
(f) $AE \perp CE$



(g) $AC \perp CD$



(h) $OP \perp AB$



Solution:

(a) In the given figure, ∠ABD is right angle.

(b) In the given figure, ∠RTS is right angle.

(c) In the given figure, ∠ACD and ∠ABD are right angles.

(d) In the given figure, ∠SRW is right angle.

(e) In the given figure, ∠AED and ∠AEB are right angles.

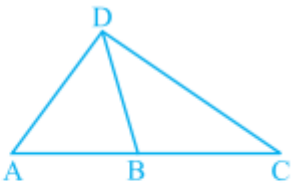
(f) In the given figure, ∠AEC is right angle.

(g) In the given figure, ∠ACD is right angle.

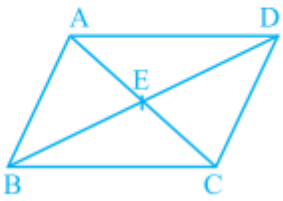
(h) In the given figure, ∠AKO, ∠AKP, ∠BKO, ∠BKP is right angle.

63. What conclusion can be drawn from each part of Fig. 2.41, if

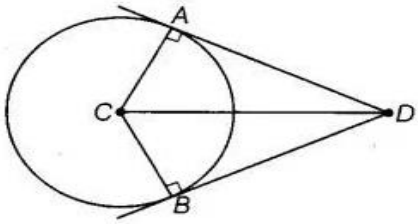
(a) DB is the bisector of ∠ADC?



(b) BD bisects ∠ABC?



(c) *DC* is the bisector of ∠*ADB*, *CA* ⊥ *DA* and *CB* ⊥ *DB*.



Solution:

(a) Since DB is the bisector of ∠ADC, this implies that ∠ADB = ∠BDC.

(c) Since BD bisects ∠ABC, this implies that ∠ABD = ∠CBD.

(d) Since DC is the bisector of ∠ADB, this implies that ∠ADC = ∠CDB and also since CA is perpendicular to DA and CB is perpendicular to DB, this implies that
∠CAD = ∠CBD
= 90°.

64. An angle is said to be trisected, if it is divided into three equal parts. If in Fig. 2.42, ∠ BAC = ∠ CAD = ∠ DAE, how many trisectors are there for ∠BAE ?

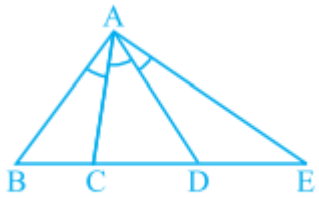


Fig. 2.42

Solution:
Trisectors are the lines which trisects the given angle into three parts. Here trisectors for ∠BAE are AC and AD respectively as they divide the ∠BAE into three equal parts.

65. How many points are marked in Fig. 2.43?

Solution:
In the given figure, two points are marked which are A and B respectively.

66. How many line segments are there in Fig. 2.43?

Fig. 2.43

Solution:
In the given figure, only one line segment AB is given.

67. In Fig. 2.44, how many points are marked? Name them.

Solution:
In the given figure, three points are marked and those points are A, B and C respectively.

68. How many line segments are there in Fig. 2.44? Name them.

Fig. 2.44

Solution:
In the given figure, there are total three line segments and that are AB, BC and AC respectively.

69. In Fig. 2.45 how many points are marked? Name them.

Solution:
In the given figure, four points are marked and those points are A, B, C and D respectively.

70. In Fig. 2.45 how many line segments are there? Name them.

Fig. 2.45

Solution:
In the given figure, there are total four line segments and that are AB, BC, CD and AD respectively.

71. In Fig. 2.46, how many points are marked? Name them.

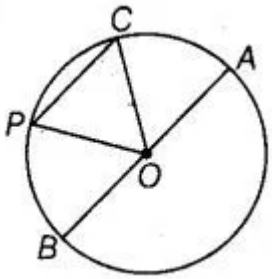
Solution:
In the given figure, five points are marked and those points are A, B, D, E and C respectively.

72. In Fig. 2.46 how many line segments are there? Name them.

Fig. 2.46

Solution:
In the given figure, there are total five line segments and that are AB, BD, DE, EC and AC respectively.

73. In Fig. 2.47, O is the centre of the circle.
(a) Name all chords of the circle.
(b) Name all radii of the circle.
(c) Name a chord, which is not the diameter of the circle.
(d) Shade sectors OAC and OPB.
(e) Shade the smaller segment of the circle formed by CP.

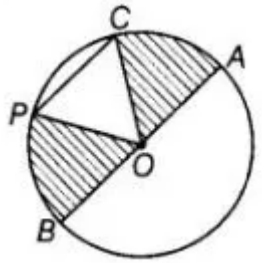


Solution:
In the given figure,
(a)Chords are AB and PC respectively.

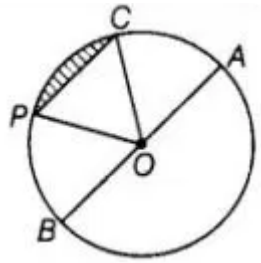
(b) Radii are OP, OC, OA and OB.

(c)PC is a chord, which is not the diameter of the circle.

(d)



(e)



74. Can we have two acute angles whose sum is
(a) an acute angle? Why or why not?
(b) a right angle? Why or why not?
(c) an obtuse angle? Why or why not?
(d) a straight angle? Why or why not?
(e) a reflex angle? Why or why not?

Solution:

(a)Yes, we can have two acute angles whose sum is an acute angle. For e.g. 30° and 40° are two acute angles and their sum = 30° + 40°
= 70, which is also an acute angle.

(b)Yes, we can have two acute angles whose sum is right angle. For e.g. 30° and 60° are two acute angles and their sum = 30° + 60°
= 90°, which is a right angle.

(c)Yes, we can have two acute angles whose sum is obtuse angle. For e.g. 45° and 60° are two acute angles and their sum = 45° + 60°
= 105°, which is an obtuse angle.

(d)No, we cannot have two acute angles whose sum is straight angle. This is because sum of two acute angles is always less than 180°.

(e)No, we cannot have two acute angles whose sum is reflex angle. This is because sum of two acute angles is always less than 180°.

75. Can we have two obtuse angles whose sum is
(a) a reflex angle? Why or why not?

(b) a complete angle? Why or why not?

Solution:
(a)Yes, we can have two obtuse angles whose sum is reflex angle. For e.g. 100° and 110° are two obtuse angles and their sum = 100° + 110°
= 210°, which is a reflex angle.

(b)No, we cannot have two obtuse angles whose sum is a complete angle. This is because complete angle is 360° and obtuse angle is less than 180°.

76. Write the name of
(a) vertices (b) edges, and (c) faces of the prism shown in Fig. 2.48.

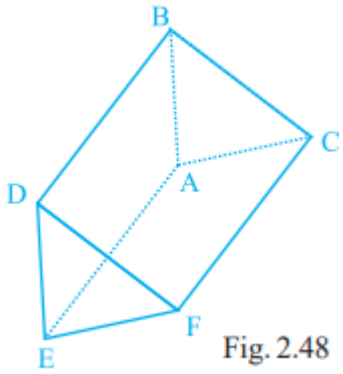


Fig. 2.48

Solution:
(a)In the given figure, vertices are A, B, C, D, E and F.

(b)Edges are: AB, BC, AC, DE, EF, DF, AE, BD, and CF.

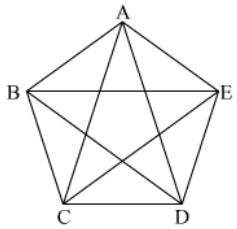
(c)Faces of the prism are: triangular faces – ABC, DEF and rectangular faces – BDFC, ACFE, and ABDE respectively.

77. How many edges, faces and vertices are there in a sphere?

Solution:
There are no edges, faces and vertices present in a sphere.

78. Draw all the diagonals of a pentagon ABCDE and name them.

Solution:
Pentagon ABCDE with all the diagonals is shown:



Corresponding diagonals are: AD, AC, BD, CE and BE.