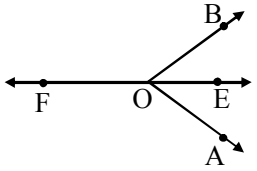
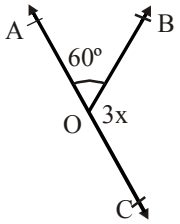
EXERCISE # 1

A. Very Short Answer Type Questions

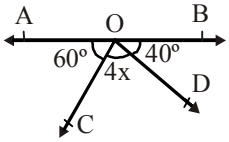
Q.1 In given figure, Ray OE bisects ∠AOB and OF is a ray opposite to OE. Show that ∠FOB = ∠FOA.



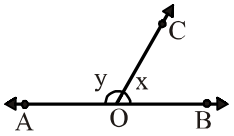
Q.2 In figure, AOC is a line, find x.



Q.3 In figure, AOB is a line, determine x.



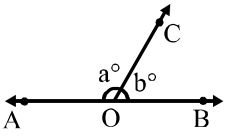
Q.4 In figure, OA and OB are the opposite rays:



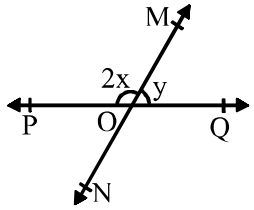
(i) If y = 110º, what is the value of x ?

(ii) If x = 75º, what is the value of y ?

Q.5 In figure, ∠AOC and ∠BOC form a linear pair. If a – b = 80º, find the values of a and b.



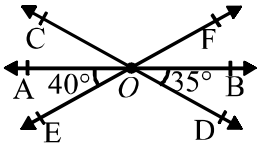
Q.6 In figure, $\overleftrightarrow{PQ}$ and $\overleftrightarrow{MN}$ intersect at O.



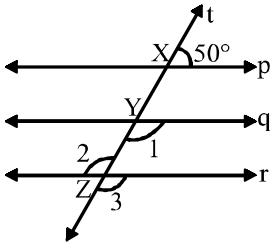
(i) Determine y when x = 60º

(ii) Determine x when y = 40º

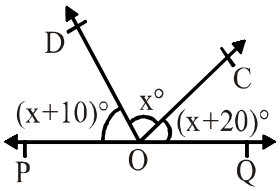
Q.7 In figure, lines AB, CD and EF intersect at O. Find the measures of ∠AOC, ∠COF.



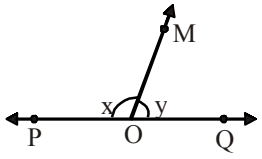
Q.8 In figure, p, q and r are parallel lines intersected by transversal t at X, Y and Z respectively. Find ∠1, ∠2 and ∠3.



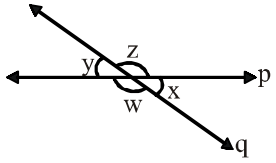
Q.9 In figure, OP and OQ are opposite rays. Find x.



Q.10 In figure, ∠POM and ∠QOM form a linear pair. If x – 2y = 30º, find x and y.

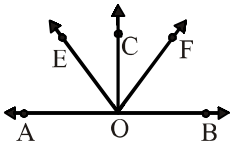


Q.11 In figure, lines p and q intersect at O. If x = 35º, find the values of y, z, w.

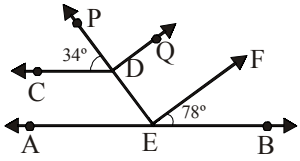


B. Short Answer Type Questions

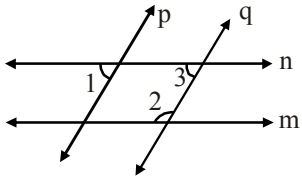
Q.12 In figure, OE bisects ∠AOC, OF bisects ∠COB and OE ⊥ OF. Show that A, O, B are collinear.



Q.13 In figure, AB || CD and EF || DQ. Determine ∠PDQ, ∠AED and ∠DEF.

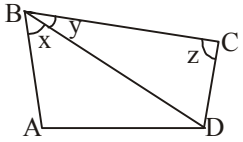


Q.14 In figure, m || n and p || q. If ∠1 = 75º, prove that $\angle 2 = \angle 1 + \frac{1}{3}$ of a right angle.



Q.15 Prove that two angles which have their arms parallel are either equal or supplementary.

Q.16 In figure, AB || DC. If $x = \frac{4}{3}y$ and $y = \frac{3}{8}z$, find the values of x, y, z.



Q.17 Two lines AB and CD intersect at O. If ∠AOC + ∠COB + ∠BOD = 270º, find the measures of ∠AOC, ∠COB, ∠BOD, ∠DOA.

Q.18 If the bisectors of angles ∠ABC and ∠ACB of a triangle ABC meet at a point O, then prove that $\angle BOC = 90º + \frac{1}{2}A$.

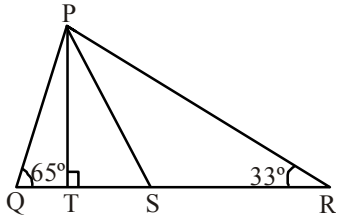
Q.19 If two parallel lines are intersected by a transversal, prove that the bisectors of the two pairs of interior angles enclose a rectangle.

Q.20 The angles of a triangle are arranged in ascending order of magnitude. If the difference between two consecutive angles is 10º, find all the three angles.

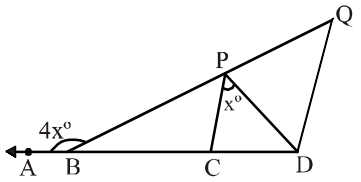
Q.21 In a ΔABC, ∠ABC = ∠ACB and the two bisectors of ∠ABC and ∠ACB intersect at O such that ∠BOC = 120º. Show that ∠A = ∠B = ∠C = 60º.

C. Long Answer Type Questions

Q.22 In figure, PT ⊥ QR and PS bisects ∠QPR. If ∠Q = 65º and ∠R = 33º, find ∠TPS.

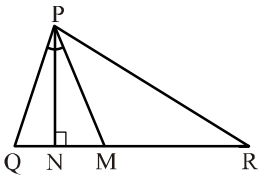


Q.23 In figure, ABCD and BPQ are lines. BP = BC and DQ || CP. Prove that
(i) CP = CD (ii) DP bisects ∠CDQ.

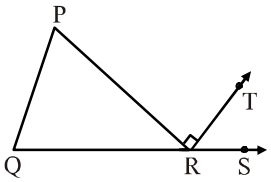


Q.24 ABCDE is a regular pentagon. Find each angle of ΔBDE.

Q.25 In figure ∠Q > ∠R and M is a point QR such that PM is the bisector of ∠QPR. If the perpendicular from P on QR meets QR at N, then prove that $\angle MPN = \frac{1}{2}(\angle Q - \angle R)$.

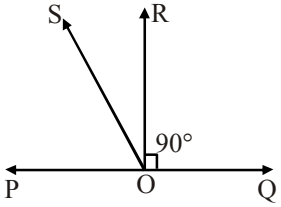


Q.26 In figure side QR of ∠PQR has been produced to S, if ∠P : ∠Q : ∠R = 3 : 2 : 1 and RT ⊥ PR, find ∠TRS.

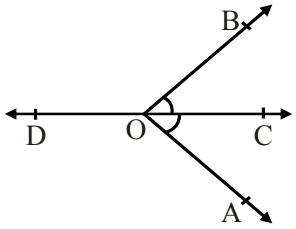


Q.27 If the angles of a triangle are in the ratio 2 : 3 : 4, find the three angles.

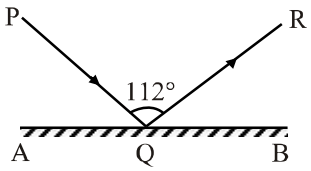
Q.28 In figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$.



Q.29 In the given figure, ray OC is the bisector of ∠AOB and OD is the ray opposite to OC. Show that ∠AOD = ∠BOD.



Q.30 In the given figure, AB is a mirror, PQ is the incident ray and QR, the reflected ray. If ∠PQR = 112°, find ∠PQA.



ANSWER KEY

A. VERY SHORT ANSWER TYPE QUESTIONS:

2. 40º

3. 20°

4. (i) 70°, (ii) 105°

5. a = 130°, b = 50°

6. (i) y = 60°, (ii) x = 70°

7. ∠AOC = 35°, ∠COF = 105°

8. ∠130°, ∠130°, ∠130°

9. 50°

10. x = 130°, y = 50°

11. y = 35°, z = w = 145°

B. SHORT ANSWER TYPE QUESTIONS :

13. ∠AED = 34°, ∠PDQ = 68°, ∠DEF = 68°

16. x = 48°, y = 36°, z = 96°

17. 90°

20. 50°, 60°, 70°

C. LONG ANSWER TYPE QUESTIONS :

22. 16°

24. ∠EBD = 36°, ∠BED = ∠BDE = 72°

26. ∠TRS = 60°

27. 40°, 60°, 80°

30. ∠PQA = 34°

EXERCISE # 2

Q.1 At 4.24 pm, how many degrees has the hour hand of a clock moved from its position at noon?

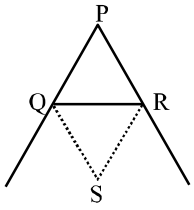
Q.2 Define adjacent angles.

Q.3 Find the sum of all interior angles of hexagon.

Q.4 Find the sum of all interior angles of pentagon.

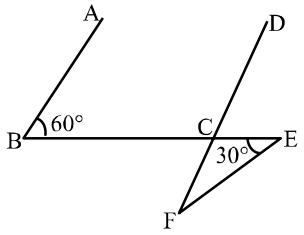
Q.5 If a angle is three times as large as its complement then find it.

Q.6 In given figure, QS and RS are beisectors of exterior angles Q and R. Then find $\angle QSR + \angle P/2$.

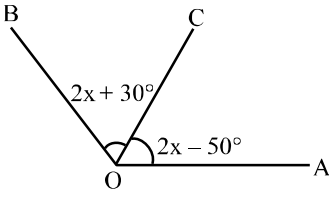


Q.7 Find the angle which exceeds its complement by 20º.

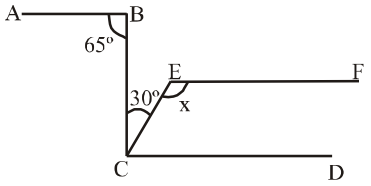
Q.8 In the figure AB || CD, then find $\angle EFD$.



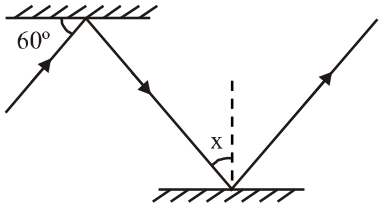
Q.9 What value of x will make AOB a straight line ?



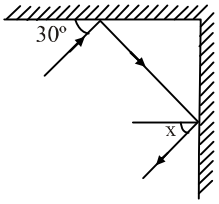
Q.10 What value of x will make CD || EF, if AB || CD?



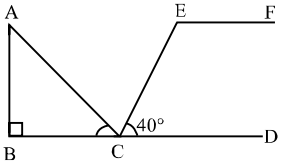
Q.11 Find the value of x in the following figure ?



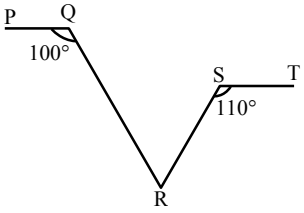
Q.12 Find the value of x in the given figure.



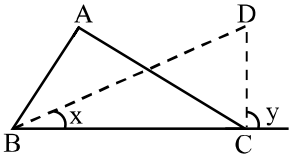
Q.13 In the figure if BD || EF, then find $\angle CEF$.



Q.14 In the figure PQ || ST, then find $\angle QRS$.



Q.15 In the adjoining figure, BD and CD are angle bisectors. Then, find the relation between $\angle D$ & $\angle A$.



ANSWER KEY

1. 132°

2. They lie in the same plane and have a common vertex, they have a ray in common, the intersection of their interiors is empty.

3. 720°

4. 540°

5. 67.5º

6. 90º

7. 55º

8. 30º

9. 50º

10. 145º

11. 30º

12. 30º

13. 140º

14. 30º

15. $\angle D = \frac{1}{2}\angle A$