CHAPTER-6

Lines and Angles

QUESTION BANK

(1)   The complement of 45^0 is
   (a) 59^0 (b) 49^0
   (c) 139^0 (d) 149^0

(2)   The measurement of an angle is 30^0 less than its complement. The measure of the angle is
   (a) 30^0 (b) 60^0
   (c) 120^0 (d) 150^0

(3)   The measurement of an angle is thrice its supplement. Then the angle is
   (a) 90^0 (b) 45^0
   (c) 130^0 (d) 135^0

(4)   If the supplement of an angle is three times its complement, then the measure of the angle is
   (a) 35^0 (b) 45^0
   (c) 105^0 (d) 135^0
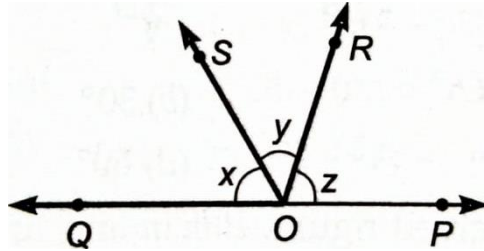
(5)   In the given figure, the value of x is
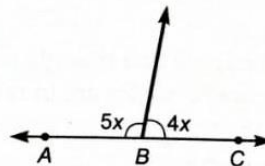
   (a) 80^0 (b) 20^0 (c) 40^0 (d) 60^0
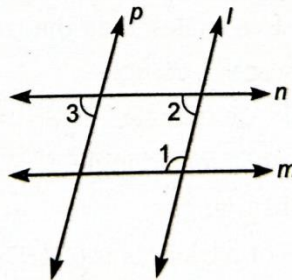
(6)   In the given figure, POQ is a line. The value of x is

    (a) 20^0 (b) 25^0 (c) 30^0 (d) 35^0
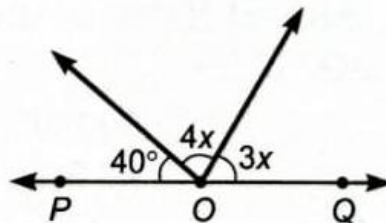
(7)   In the given figure, what value of x would make AOB a straight line?

(a) 12^0 (b) 14^0 (c) 16^0 (d) 18^0
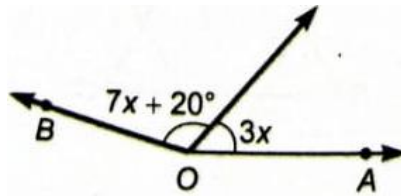
(8) In the given figure, x : y : z = 5 : 4 : 6 If POQ is a straight line, then the value of x, y and z are

(a) 48^0, 60^0, 72^0 (b) 60^0, 72^0, 48^0

(c) 72^0, 60^0, 48^0 (d) 60^0, 48^0, 72^0

(9) The bisectors of two adjacent supplementary angles include

(a) an acute angle   (b) a right angle

(c) an obtuse angle   (d) none of these

(10) The necessary condition for two line *l* and *m* to be parallel, when these lines are intersected by a transversal line *n* is such that

(a) corresponding angles are complementary

(b) vertically opposite angles are complementary

(c) alternate angles differ by 90^0

(d) interior angles on the same side are supplementary

(11) If he interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then the greater of the two angles is

(a) 54^0 (b) 108^0 (c) 120^0 (d) 136^0

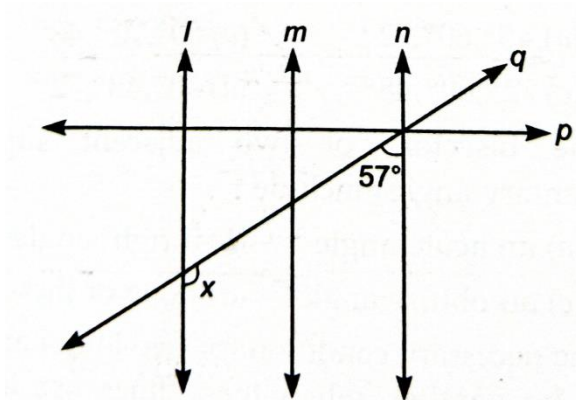(12) In the given figure, $l \parallel p$, $m \parallel n$ and $\angle 1 = 105^0$. The measure of $\angle 3$ is

(a) 45^0 (b) 65^0 (c) 75^0 (d) 105^0

(13)   In the given figure, if AB||CD, then the value of x is
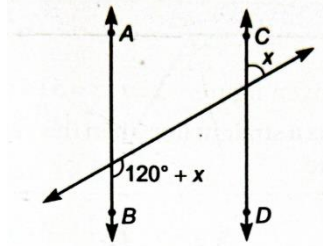

(a) 20^0 (b) 30^0 (c) 45^0 (d) 60^0

(14)   In the given figure, $l \parallel m \parallel n$ and lines p and q are transversals. The measure of angle x is


(a) 45^0 (b) 43^0 (c) 150^0 (d) 123^0

(15)   If a transversal intersects two parallel lines, then which of the following alternatives is not true:

(a)   Pair of alternate interior angles are equal.

(b)   Pair of corresponding angles are equal.

(c)   Interior angles on the same side of the transversal are complementary.

(d)   Interior angles on the same side of the transversal are supplementary.

(16)   Angles of a triangle are in the ratio $2 : 4 : 3$. The smallest angle of the triangle is

(a) 60^0 (b) 40^0 (c) 80^0 (d) 20^0

(17)   If one angle of a triangle is equal to the sum of the other two angles, then the triangle is

(a) an isosceles triangle

(b) an obtuse triangle

(c) an equilateral triangle

(d) a right triangle

(18)   One angle of a triangle is 65^0. The remaining two angles, if there difference is 25^0, are

(a) $70^0, 45^0$ (b) $60^0, 35^0$

(c) $75^0, 50^0$ (d) $65^0, 40^0$

(19)   In the given figure, lines PQ and RS intersect at point T, such that $\angle PRT = 40^0$, $\angle RPT=95^0$ and $\angle TSQ = 75^0$
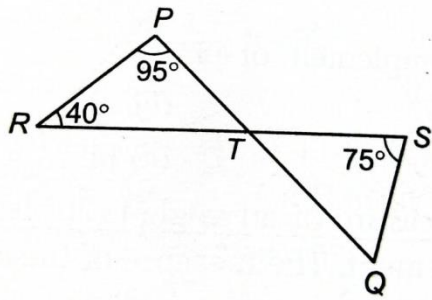
Then $\angle SQT$ is

(a) 40^0 (b) 50^0 (c) 60^0 (d) 70^0

(20)   In the given figure, the value of x + y is
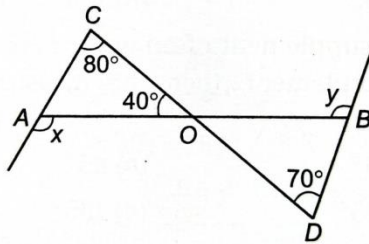

(a) 180^0 (b) 210^0 (c) 230^0 (d) 270^0

(21)   An exterior angle of a triangle is 108^0 and its interior opposite angle are in ratio 4 : 5. The angles of the triangle are

(a) $48^0, 60^0, 72^0$

(b) $50^0, 60^0, 70^0$

(c) $52^0, 56^0, 72^0$

(d) $42^0, 60^0, 76^0$

(22)   In a $\triangle ABC$, the internal bisectors of $\angle B$ and $\angle C$ meet at P and the external bisectors of $\angle B$ and $\angle C$ meet at Q then the value of $\angle BPC + \angle BQC$ is
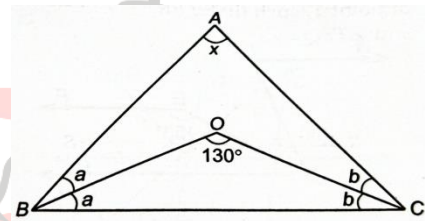
(a) 90^0 (b) 180^0 (c) 270^0 (d) 360^0

(23)   In the given figure, the value of $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F$ is
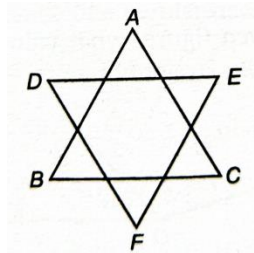
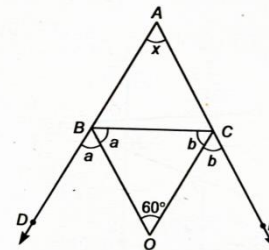(a) 90^0 (b) 180^0 (c) 270^0 (d) 360^0

(24)   In the given figure, the value of x is

(a) 30^0 (b) 65^0

(c) 80^0 (d) 100^0
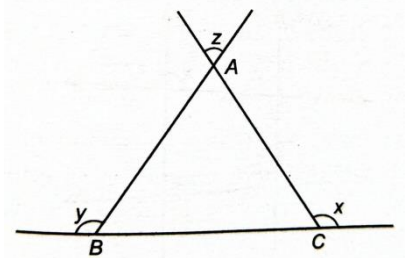
(25)   In the given figure, the value of x is

(a) 75^0 (b) 60^0

(c) 45^0 (d) 45^0

(26)   In the given figure, the value of z in the terms of x and y is

(a) $x + y + 360^0$ (b) $x + y + 180^0$

(c) $x + y - 180^0$ (d) $180^0 - (x + y)$

(27)   If a ray stands on a line, then the sum of the two adjacent angles is _____.

(28)   Angle is forming a linear pair are _____.

(29)   If the angles forming a linear pair are equal, then the measure of each angle is _____.

(30)   If one angle of a linear pair is acute, then the other angle will be _____.

(31)   If one angles of a linear pair are in the ratio 2 :3, then the measure of the acute angle is _____ and the measure of the obtuse angle is _____.

(32)   If one angle of a linear pair is double the other one, then the smaller angle is _____.

(33)   If the sum of the two adjacent angles is 180^0, then the non-common arms of the two angles are two _____ rays.

(34)   If two lines intersect, then the vertically opposite angles are _____.

(35)   Two line perpendicular to the same line are _____to each other.

(36)   If a transversal intersects two parallel lines, then each pair of corresponding angles is _____.

(37)   If a transversal intersects two parallel lines, then each pair of alternate interior angle is _____.

(38)   If a transversal intersects two parallel lines, then each pair of interior angles on the same side of the transversal is _____.

(39)   If a transversal intersects two lines such that any one pair of alternate interior angles is equal, then the two lines are _____ to each other.

(40)   If the angles forming a linear pair are equal, then the measure of each angle is _____.

(41)   If one angle of a linear pair is acute, then the other angle will be _____.

(42)   If a transversal intersects two lines such that any one pair of interior angles on the same side of transversal is supplementary, then the two lines are _____ to each other.

(43)   The sum of the three angles of a triangle _____.

(44)   If a side of triangle is produced, the exterior angle so formed is equal to _____ of the two interior opposite angles.

(45)   The exterior angle of a triangle is _____than either of its interior opposite angles.

(46) If a transversal intersects two parallel lines, then the bisectors of the interior angles on the same side of the transversal intersect each other at_____.

(47) An angle is 26^0 less than its complement. Find its measure.

(48) Two line perpendicular to the same line are _____to each other.

(49) The supplement of an angle is one-third of itself. Determine the angle and its supplement.

(50) Find the measure of an angle, if seven times its complement is 10^0 less than three times its supplement.

(51) Two complementary angles are such that two times the measure of one is equal to three times the measure of the other. Find the measure of the larger angle.

(52) Two supplementary angles are in the ratio 3 : 7. Find the angles.

(53) Find the complement of the angle $42^0\ 25'\ 36"$.

(54) Find the supplement of the angle $98^035'20"$.

(55) What value of x would make AOB a line in Figure, if ∠AOC = $4x^0$ and ∠BOC=$(6x +30)^0$?

(56) In figure, if ∠BOC = $(7x +20)^0$ and ∠COA = $3x^0$, then find the value of x for which AOB becomes a straight line.
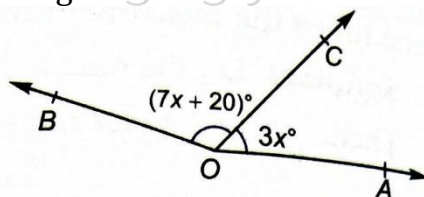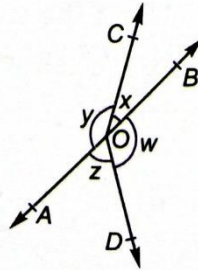

(57) In figure, AOB is a straight line. Find the value of x. Hence, find ∠AOC, ∠COD and ∠BOD.
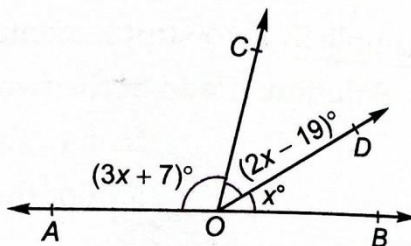
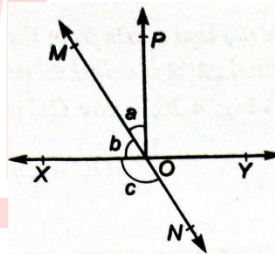(58) In figure ∠PQR= ∠PRQ, then prove that ∠PQS= ∠PRT.
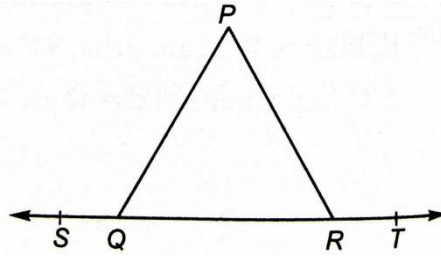
(59)   In figure, if x + y = w + z, then prove that AOB is a straight line.

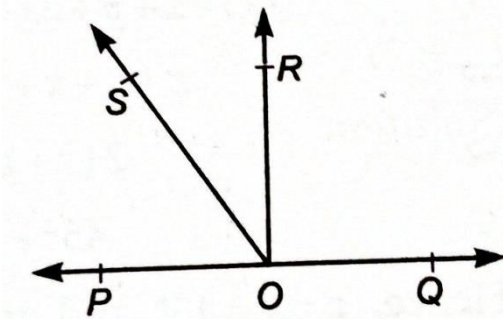(60)   In figure, lines XY and MN intersect at O. If ∠POY= 90⁰ and a : b = 2 :3, find c .

(61)   Find the complement of the angle $42^0 25' 36''$.
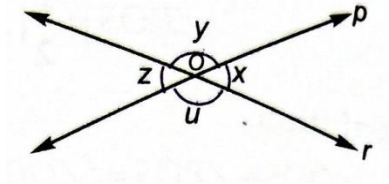
(62)   Find the supplement of the angle $98^0 35' 20''$.

(63)   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 $\angle ROS = \frac{1}{2} [\angle QOS - \angle POS]$
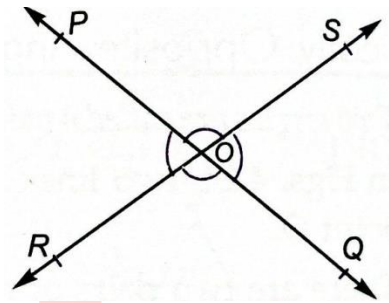

(64)   If two lines intersect each other, then the vertically opposite angles are equal.
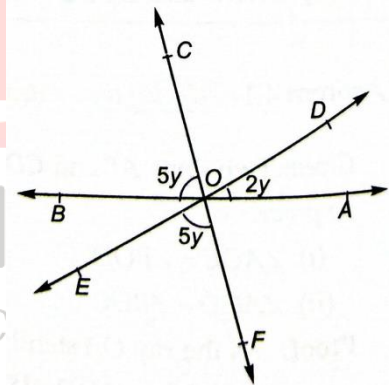
(65)   In figure, lines p and r intersect at O. If x = 45^0, find y, z and u.

(66)   In figure, determine the value of y and hence find ∠EOB, ∠FOA and ∠COD.

(67)   In figure, lines AB and CD intersect at O. If ∠AOC + ∠BOE = 70^0 and ∠BOD = 40^0, find ∠BOE and reflex ∠COE.

(68)   It is given that ∠XYZ = 64^0 and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects ∠ZYP, find ∠XYQ and reflex ∠QYP.
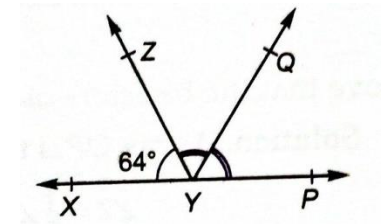
(69)   Two supplementary angles are in the ratio 3 : 7. Find the angles.

(70)   In figure, AOB is a line, OD bisects ∠AOC and OE bisects ∠BOC. Show that ∠DOE is a right angle.
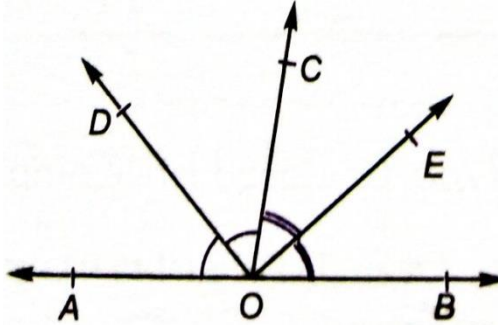
(71)   In figure, OD is the bisector of ∠AOC, OE is the bisector of ∠BOC and OD ⊥ OE. Show that the points A, O and B are collinear.

(72)   In figure, AB and CD are two intersecting lines. OP and OQ are respectively bisectors of ∠BOD and ∠AOC. Show that OP and OQ are opposite rays.
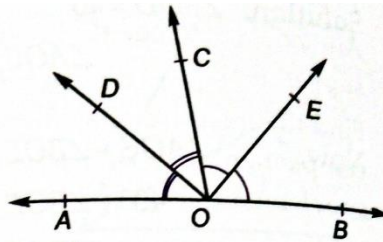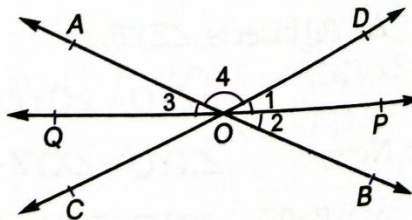

(73)   An angle is equal to its complement. Find its measure.

(74)   An angle is equal to five times its complement. Find its measure.

(75)   An angle is 28^0 less than its complement. Find its measure.

(76)   Find the measure of an angle which is 24^0 more than its complement.

(77)   Find the measure of an angle with 25^0 less than its supplement.

(78)   An angle is half of its complementary angle. Find the angle.

(79)   Two supplementary angles differ by 48^0. Find the angles.

(80)   Two complementary angles are in the ratio 4:5. Find the angles.

(81)   An angle is equal to one-third of its supplement. Find its measure.

(82)   Find the measure of an angle, if six times its complement is 20^0 less than twice is supplement.

(83)   Prove that the sum of the angles of a hexagon is 720^0.

(84)   An angle is 28^0 less than its complement. Find its measure.

(85)   Find the measure of an angle which is 24^0 more than its complement.

(86)   If a transversal intersects two parallel lines, then each pair of alternate interior angles is equal.

(87)   Find the measure of an angle with 25^0 less than its supplement.

(88)   If a transversal intersects two lines such that a pair of alternate interior angles is equal, then the two lines are parallel.

(89)   Lines which are parallel to the same line are parallel to each other.

(90)   Prove that two lines perpendicular to the same line are parallel to each other.

(91)   If a transversal intersects two parallel lines, then prove that the bisectors of the corresponding angles are also parallel.

(92)   If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

(93)   Two complementary angles are in the ratio 4:5. Find the angles.

(94)   An angle is equal to one-third of its supplement. Find its measure.

(95)   If a transversal intersects two parallel lines, then prove that the bisectors of any pair of alternate interior angles are parallel.

(96)   If the arms of an angle are respectively parallel to the arms of another angle, show that the two angles are either equal or supplementary.

(97)   Prove that if the two arms of an angle are $\perp$ to the two arms of another angle, then angle are either equal or supplementary.

(98)   The sum of the three angles of a triangle is 180^0.

(99)   If a side of a triangle is produced, then the exterior angle so formed is equal to the sum of the two interview opposite angles.

(100) Prove that sum of all angles of a quadrilateral is 360^0.

(101) Prove that the sum of the angles of a pentagon is 540^0.

(102) Prove that the sum of the angles of a hexagon is 720^0.

(103) If a transversal intersects two parallel lines, prove that the bisectors of the interior angles on the same side of the transversal intersect each other at right angles.

(104) If two parallel lines are intersected by a transversal, prove that the bisectors of two pairs of interior angles from a rectangle.

(105) Prove that sum of all angles of a quadrilateral is 360^0.

(106) Show that the bisectors of the base angles of a triangle can never enclose a right angle.

(107) In Δ PQR, $\angle Q > \angle R$, PA is the bisector $\angle QPR$ and PM $\perp$ QR. Prove that $\angle APM = \frac{1}{2}(\angle Q + \angle R)$

(108) ABCD is a quadrilateral and bisectors of $\angle A$ and $\angle D$ meet at O. Prove that $\angle AOD = \frac{1}{2}(\angle B + \angle C)$

(109) If a transversal intersects two parallel lines, then prove that the bisectors of any pair of alternate interior angles are parallel.

(110) Prove that the angle between the angle bisector of one base angle and the external bisector of the other is equal to one half of the vertical angle.

(111) The side BC of Δ ABC is produced to D. If the bisector of $\angle A$ meets BC in L, prove that $\angle ABC + \angle ACD = 2 \angle ALC$.

(112) The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles of the triangle.

(113) In a triangle ABC, if $2\angle A = 3 \angle B = 6 \angle C$, find $\angle A, \angle B$ and $\angle C$.

(114) If one angle of a triangle is equal to the sum of the other two angles of the triangle, show that the triangle is a right triangle.

(115) One of the angles of a triangle is 65^0. Find the remaining two angles, if their difference is 25^0.

(116) The angle of a triangle are $(x-40)^0$, $(x-20)^0$ and $\left(\frac{x}{2}-10\right)^0$. Find the value of x and then find the angles of the triangle.

(117) Three angles of a quadrilateral are 110^0, 40^0 and 50^0. Find the fourth angle.

(118) If each angle of a triangle is less than the sum of the other two, show that the triangle is acute angled.

(119) If one of the angle of a triangle is greater than the sum of the other two, show that the triangle is obtuse angled.

(120) ABCD is a quadrilateral and bisectors of $\angle$A and $\angle$D meet at O. Prove that $\angle AOD = \frac{1}{2}(\angle B + \angle C)$