CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. If a ray stands on a line then the sum of the adjacent angles so formed is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

2. The sum of all the angles around a point is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

3. The sum of all the angles formed on the same side of a line at a given point on the line is
(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

4. The angle which is four times its complement is
(a) 60^0 (b) 30^0 c) 45^0 (d) 72^0

5. The angle which is five times its supplement is
(a) 150^0 (b) 180^0 c) 90^0 (d) 360^0

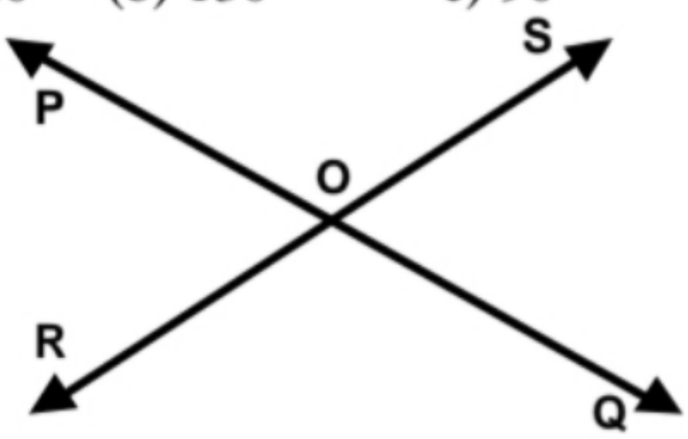
6. The measure of an angle which is equal to its complement is
(a) 60^0 (b) 30^0 c) 45^0 (d) 15^0

7. The measure of an angle which is equal to its supplement is
(a) 100^0 (b) 75^0 c) 90^0 (d) 60^0

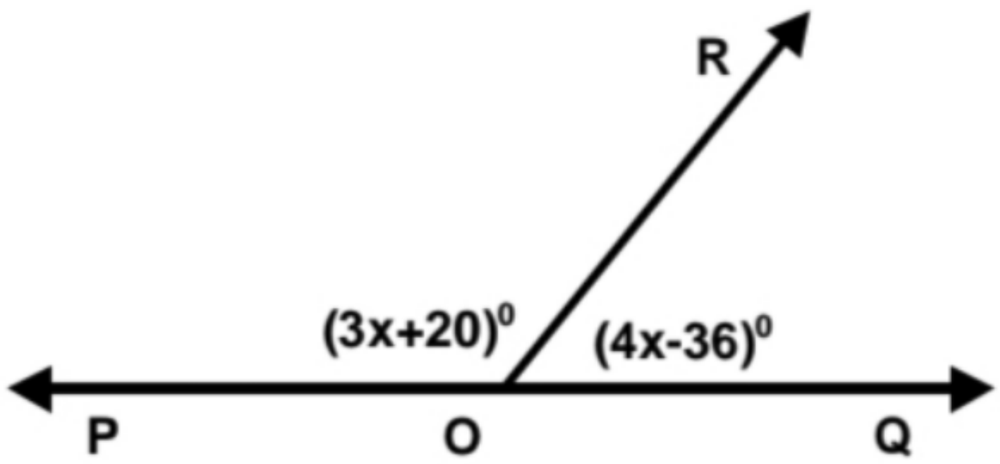
8. If two parallel lines are intersected by a transversal, then the bisectors of the two pairs of interior angles enclose
(a) a square (b) a rectangle c) a parallelogram (d) a trapezium

9. Two adjacent angles on a straight line are in the ratio 5 : 4. then the measure of each one of these angles are
(a) 100^0 and 80^0 (b) 75^0 and 105^0 c) 90^0 and 90^0 (d) 60^0 and 120^0

10. Two lines PQ and RS intersect at O. If $\angle POR = 50^0$, then value of $\angle ROQ$ is
(a) 120^0 (b) 130^0 c) 90^0 (d) 150^0



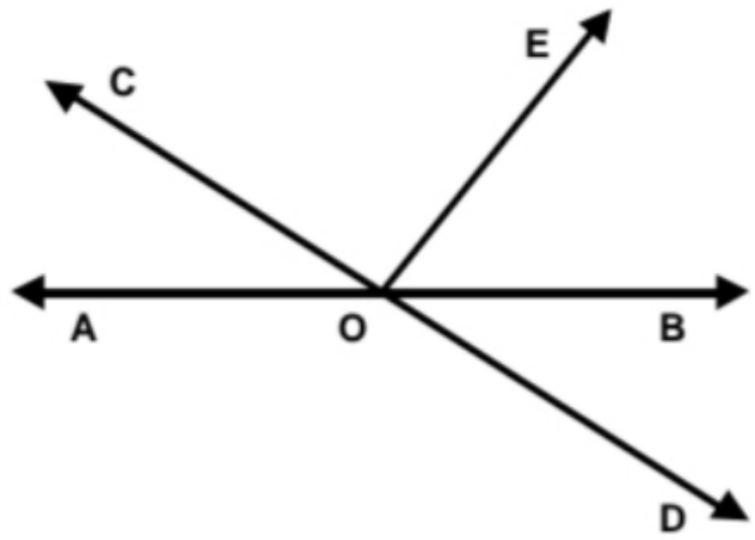
11. In the adjoining figure the value of x is
(a) 25^0 (b) 28^0 c) 30^0 (d) 60^0



12. If two straight lines intersect each other in such a way that one of the angles so formed measure 90^0, then each of the remaining angles measures is
(a) 50^0 (b) 75^0 c) 90^0 (d) 60^0

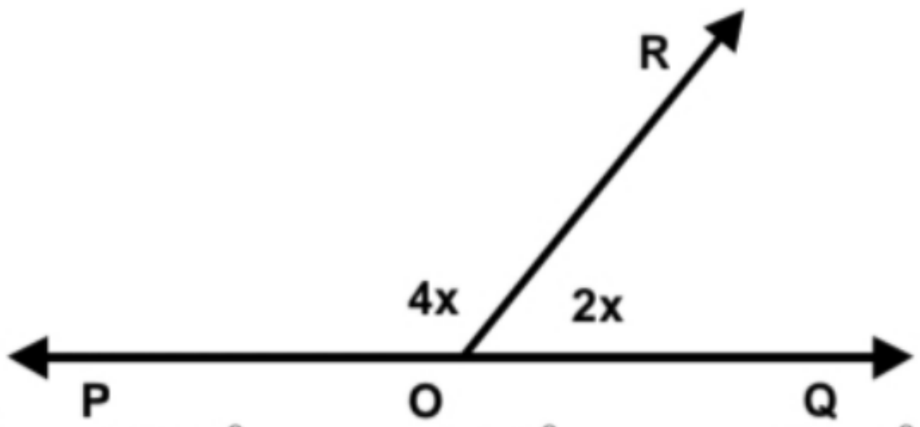
CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. In fig. AB and CD intersect each other at O. If $\angle AOC + \angle BOE = 70^0$ and $\angle BOD = 40^0$ then the value of $\angle BOE$ is



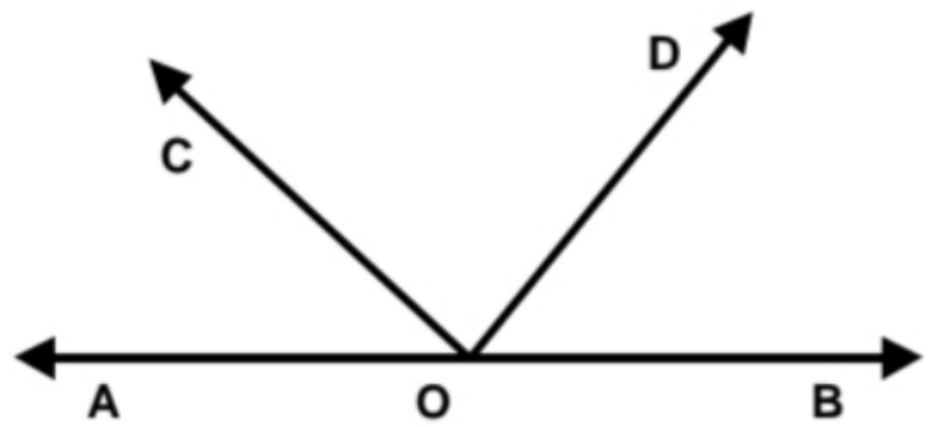
(a) 30^0 (b) 110^0 c) 120^0 (d) 150^0

2. In fig. POQ is a line, $\angle POR = 4x$ and $\angle QOR = 2x$ then the value of x is



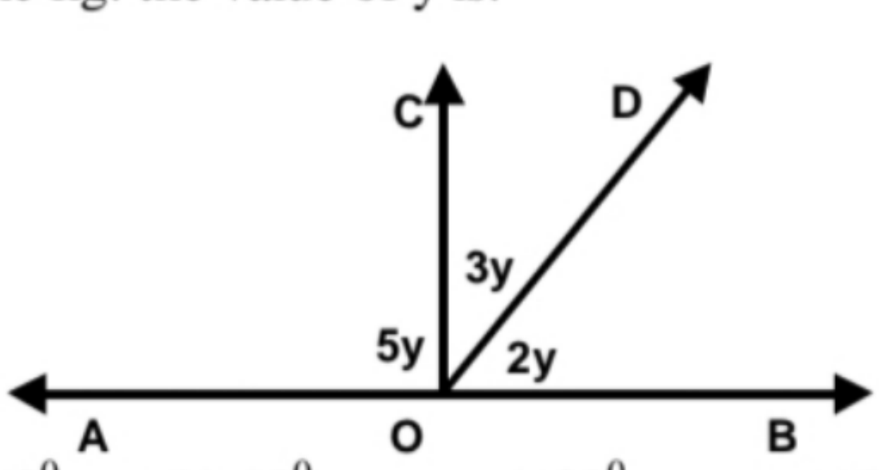
(a) 50^0 (b) 20^0 c) 30^0 (d) 90^0

3. In the given fig. $\angle AOC + \angle BOD = 75^0$, then the value of $\angle COD$ is



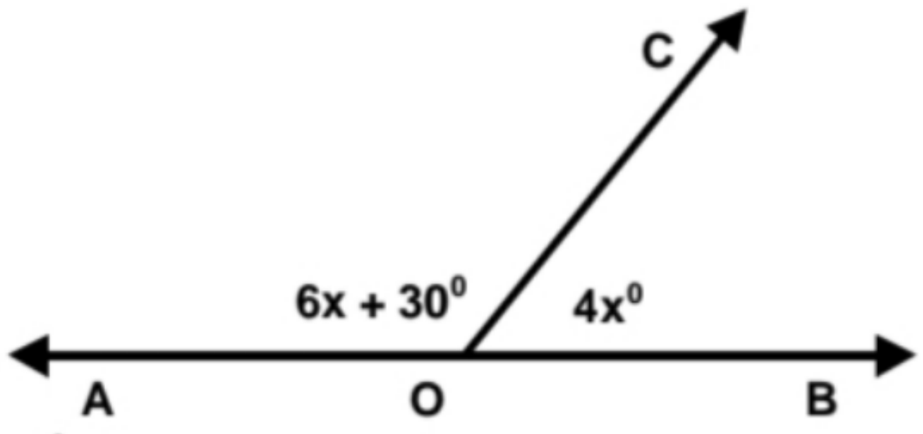
(a) 130^0 (b) 105 c) 120^0 (d) 75^0

4. In the fig. the value of y is:



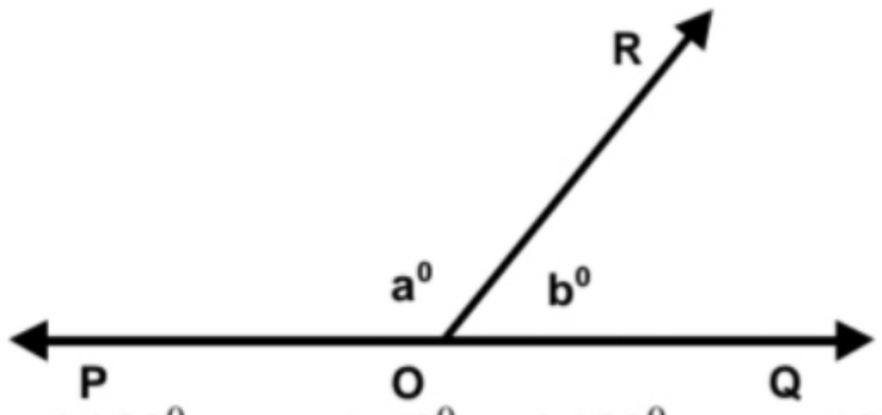
(a) 60^0 (b) 18^0 c) 30^0 (d) 90^0

5. In fig., the value of x is:



(a) 60^0 (b) 15^0 c) 30^0 (d) 45^0

6. In fig. $\angle POR$ and $\angle QOR$ form a linear pair if $a - b = 80^0$ then values of a and b respectively are:



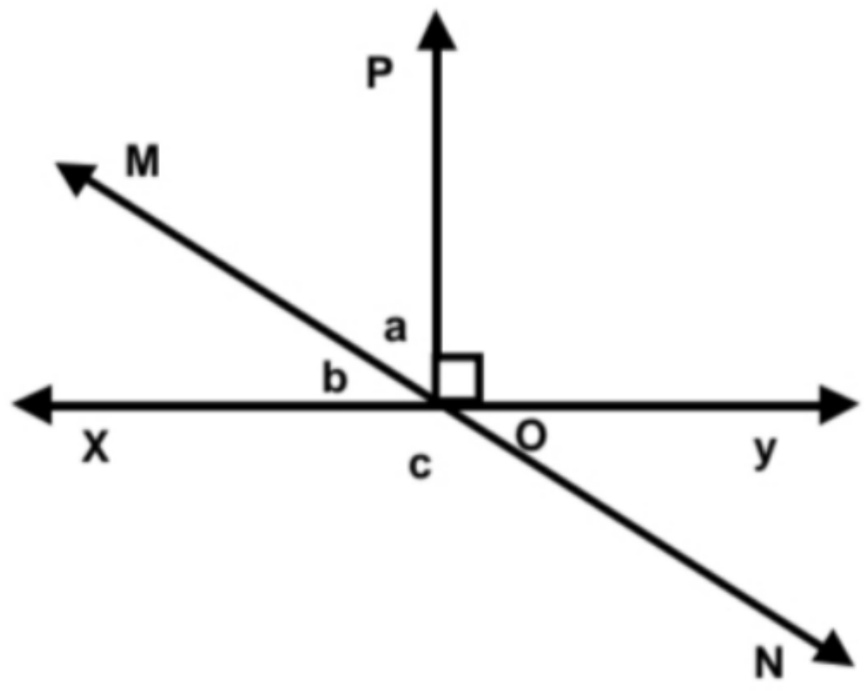
(a) 130^0 and 50^0 (b) 50^0 and 130^0 c) 60^0 and 120^0 (d) 40^0 and 140^0

7. For two parallel lines sum of interior angles on the same side of a transversal line is

(a) 100^0 (b) 180^0 c) 90^0 (d) 360^0

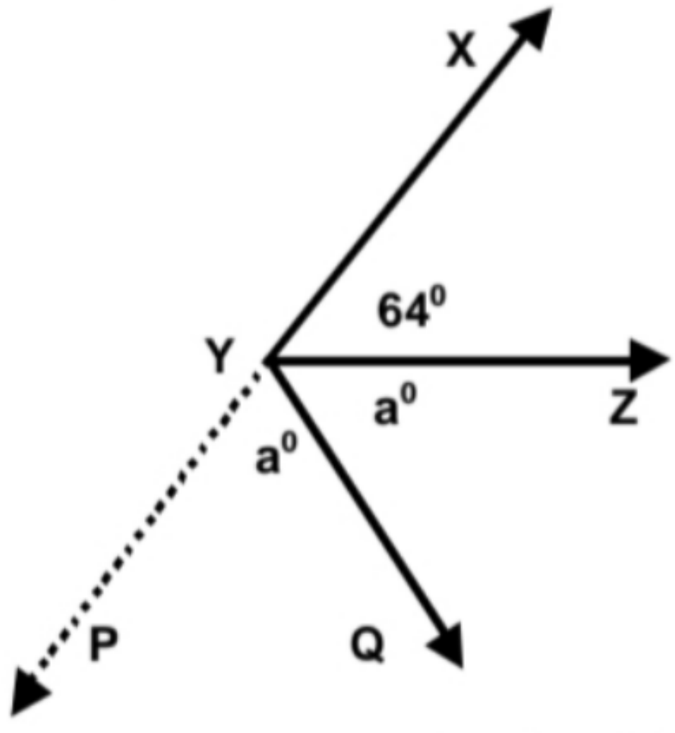
8. In fig., lines XY and MN intersect each other at point O. If $\angle POY = 90^0$ and a : b = 2 : 3 then the value of $\angle C$ is

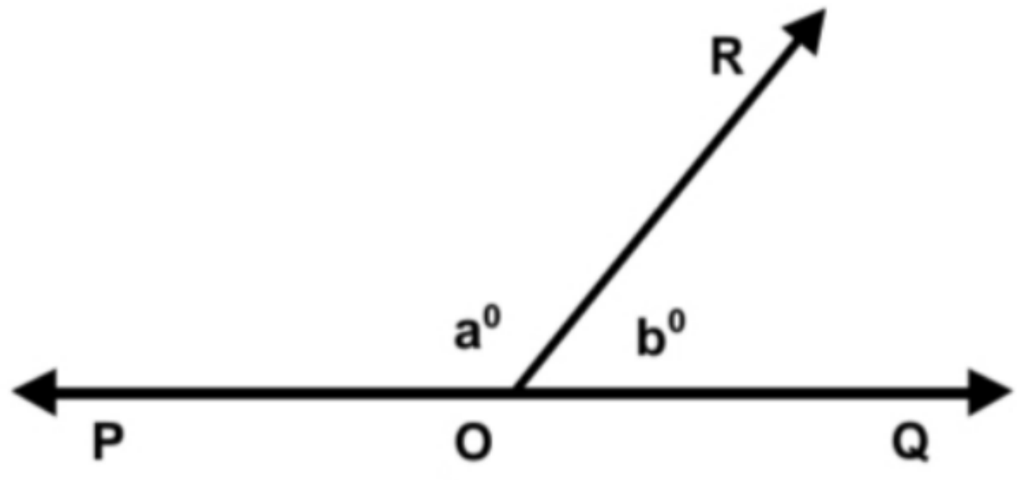
(a) 140^0 (b) 120^0 c) 80^0 (d) 95^0



9. In fig. $\angle XYZ = 640$ and XY is produced to point P. If ray YQ bisect $\angle ZYP$ then the value of $\angle XYQ$ is

(a) 122^0 (b) 126^0 c) 302^0 (d) 258^0

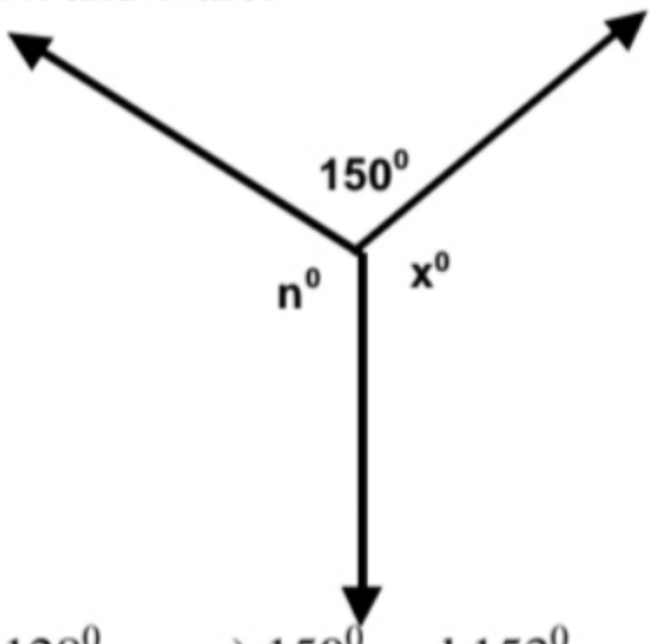




10. In fig., b is more than one-third of a right angle than a. The values of a and b are:

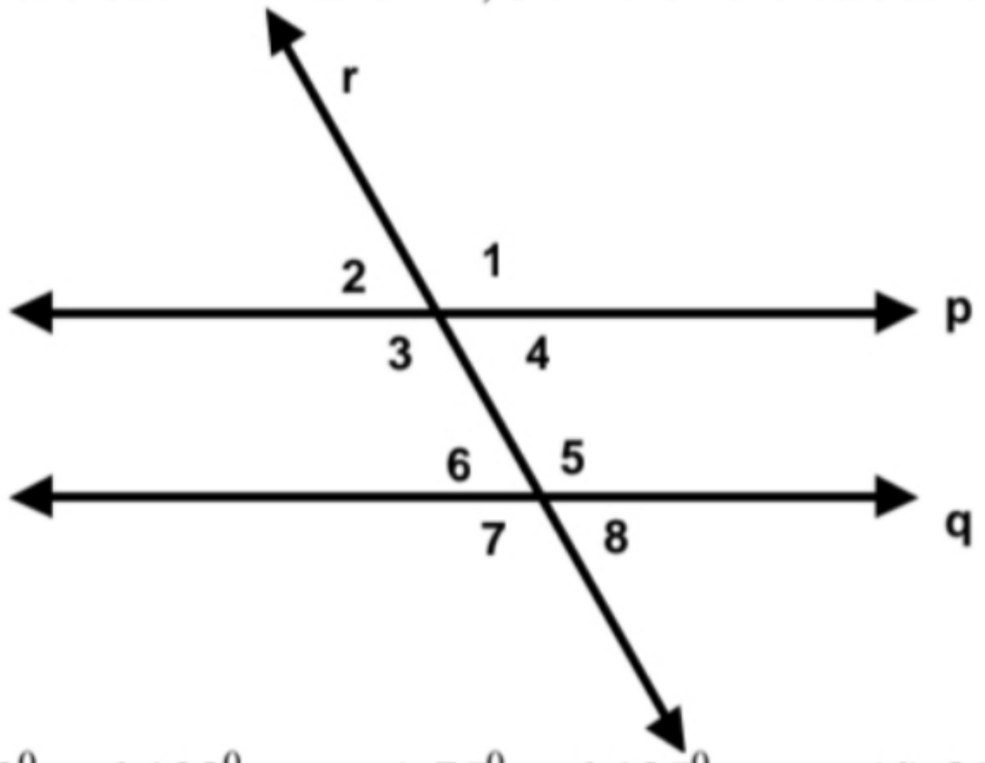
(a) 95^0 and 85^0 (b) 105^0 and 75^0 c) 60^0 and 120^0 (d) 65^0 and 115^0

11. In fig., $n - x = 3^0$ then values of x and n are:



(a) 126^0 and 129^0 (b) 125^0 and 128^0 c) 150^0 and 153^0 (d) none of these

12. In fig., q || r and p is transversal. If $\angle 1$ and $\angle 2$, 3 : 2 then the values of $\angle 3$ and $\angle 4$ are:

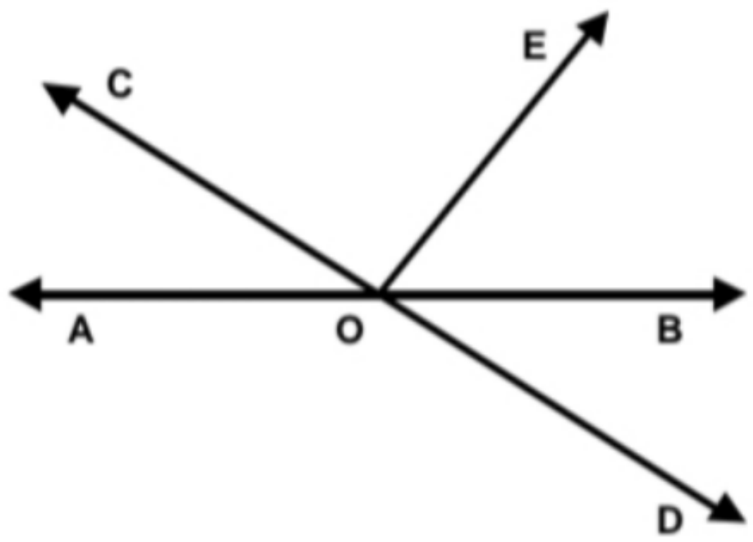


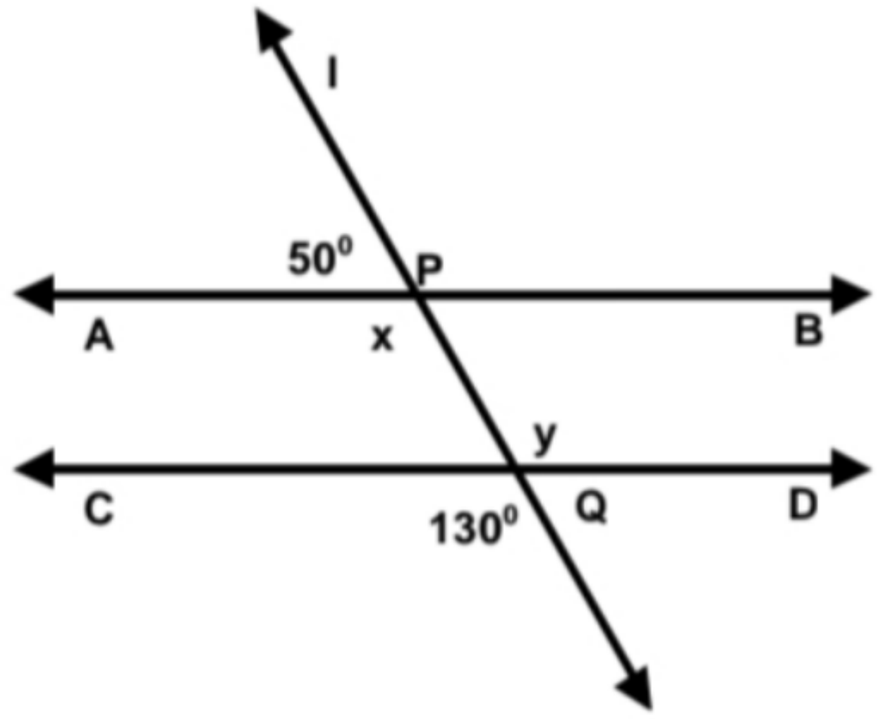
(a) 108^0 and 72^0 (b) 72^0 and 108^0 c) 75^0 and 105^0 (d) 85^0 and 95^0

CLASS IX: CHAPTER - 6
LINES AND ANGLES

1. In fig. the values of x and y are equal to:

(a) 130^0 (b) 150^0 c) 160^0 (d) 135^0

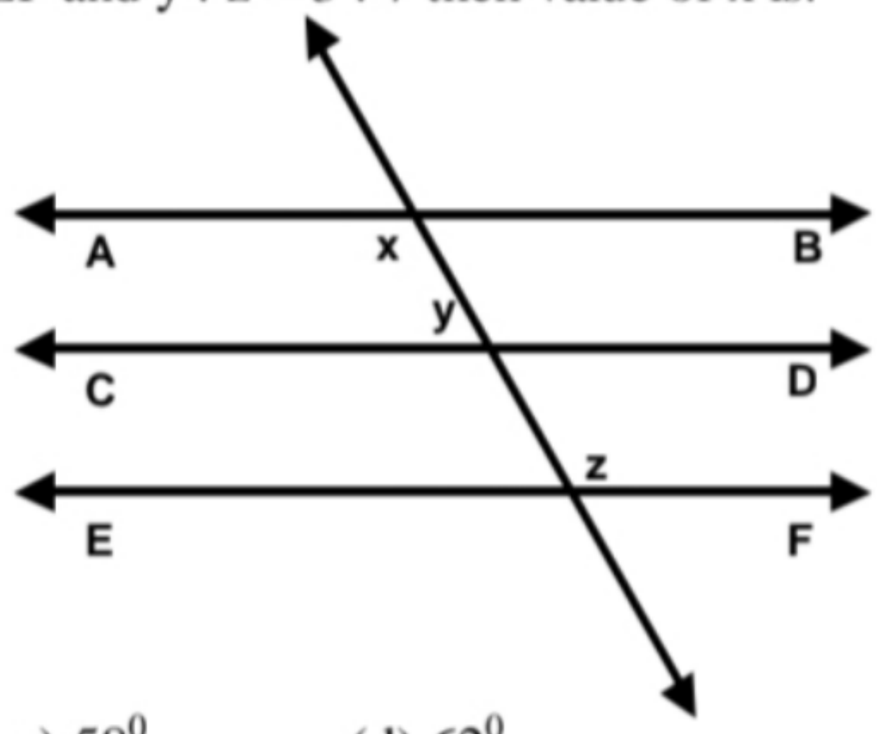




2. In fig. AB and CD intersect each other at O. If $\angle AOC + \angle BOE = 70^0$ and $\angle BOD = 40^0$ then the value of $\angle COE$ is

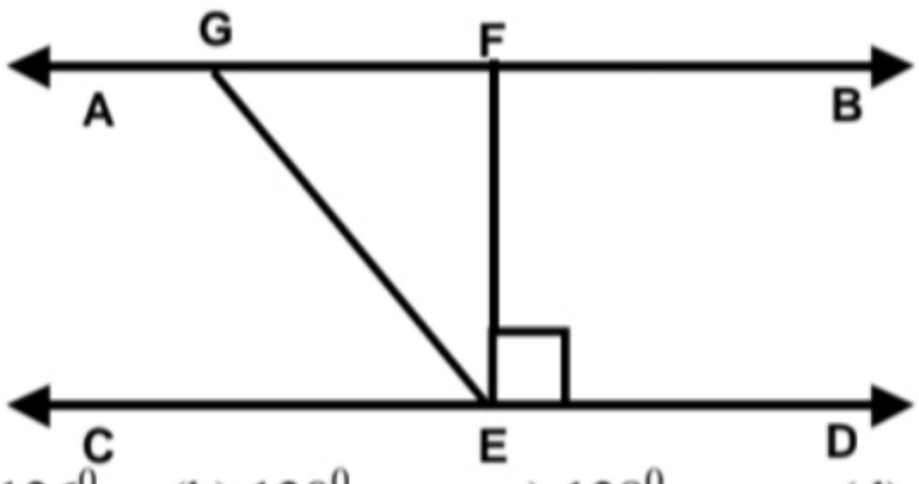
(a) 250^0 (b) 70^0 c) 30^0 (d) 50^0

3. In fig, if AB || CD, CD || EF and y : z = 3 : 7 then value of x is:



(a) 126^0 (b) 120^0 c) 58^0 (d) 62^0

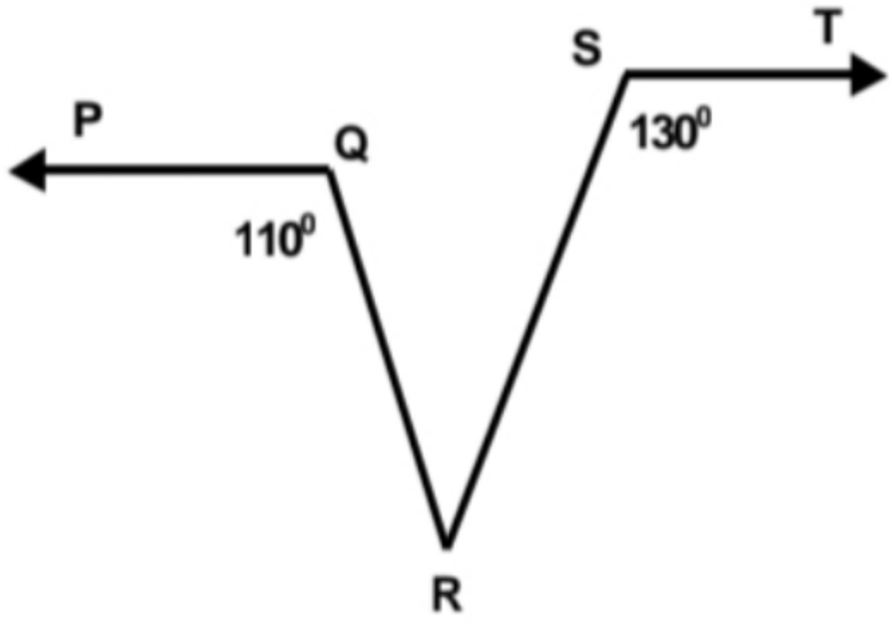
4. In fig, if AB || CD, EF ⊥ CD and $\angle GED = 126^0$ then the value of $\angle AGE$ is



(a) 126^0 (b) 120^0 c) 128^0 (d) 54^0

5. In fig, if PQ || ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$ then the value of $\angle QRS$ is

(a) 60^0 (b) 120^0 c) 80^0 (d) 90^0

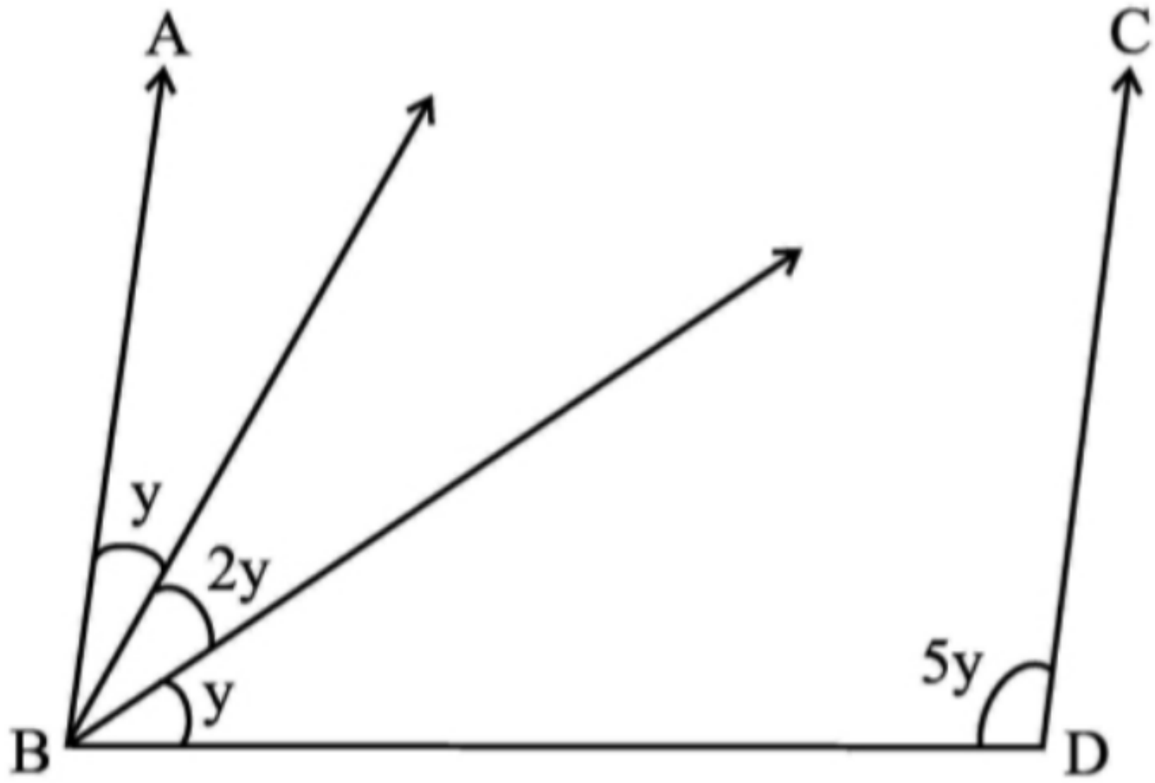


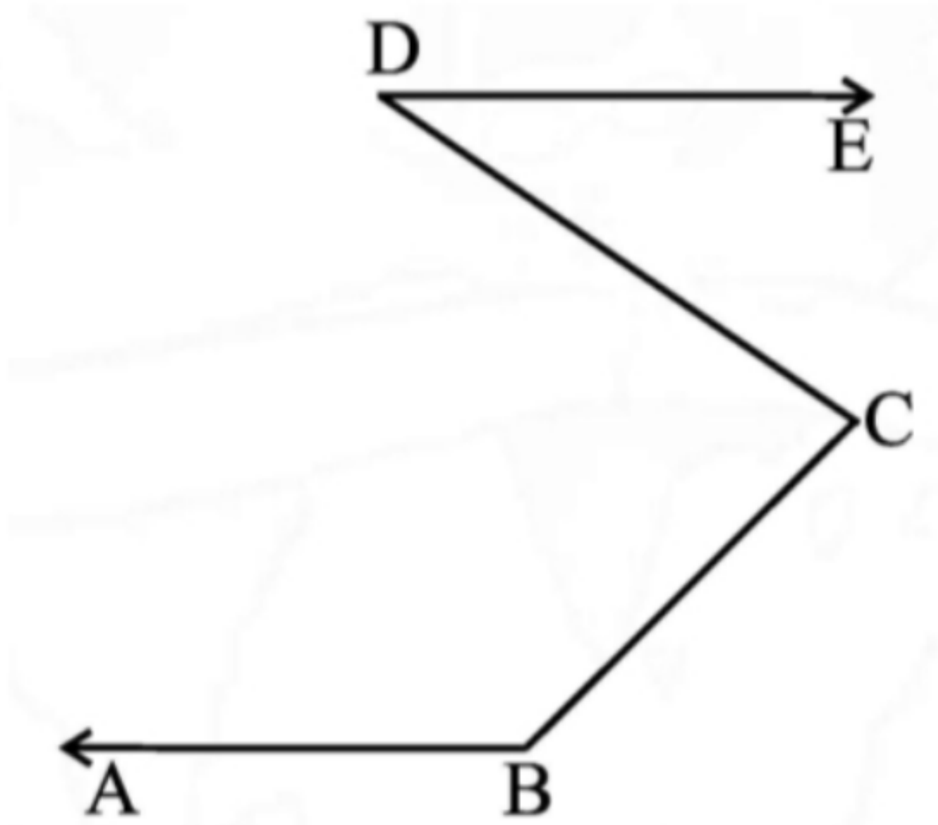
PRACTICE QUESTIONS

CLASS IX: CHAPTER - 6

LINES AND ANGLES

1. In the figure, if AB || CD, then what is the value of y.





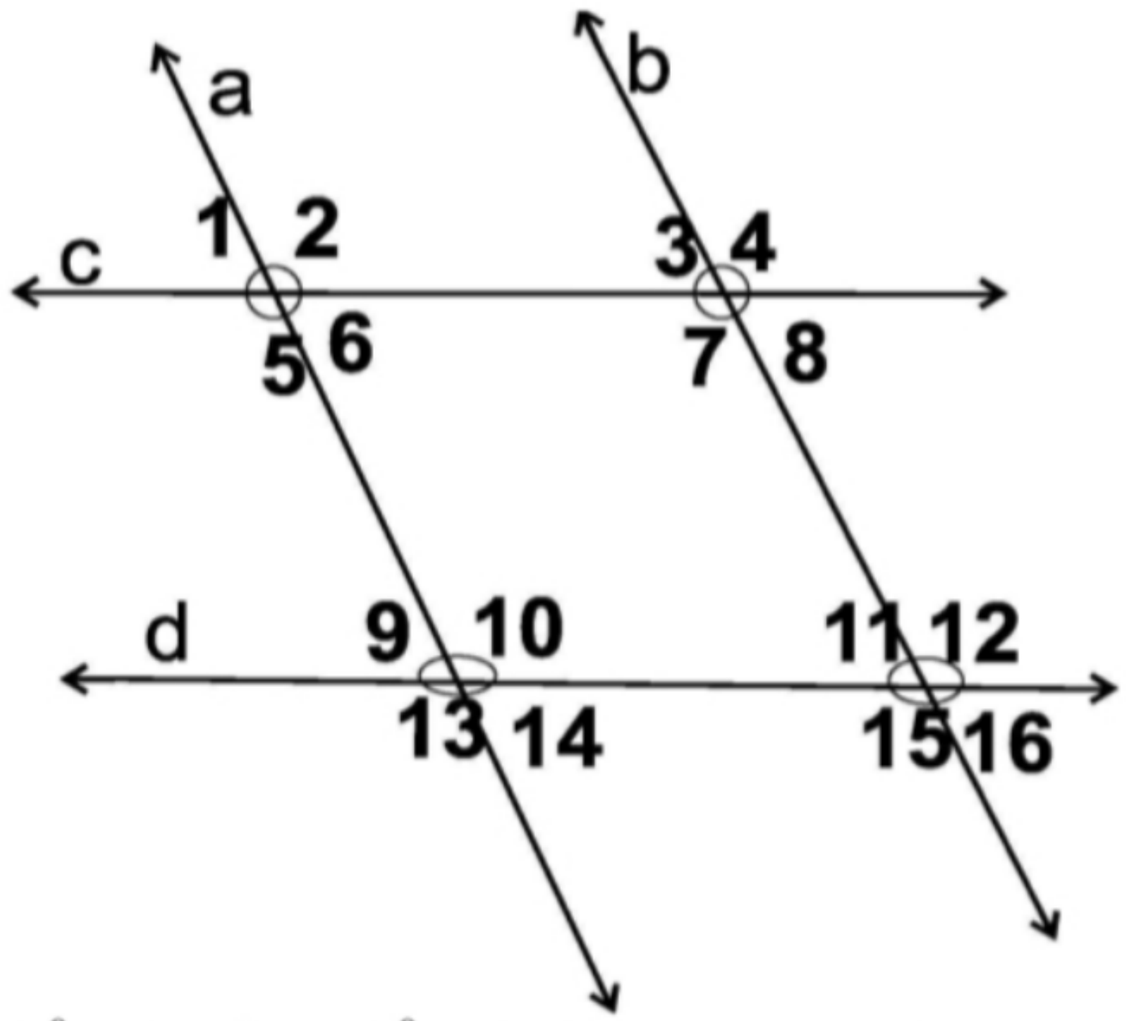
2. In the given above right sided figure, BA || DE. Prove that $\angle ABC + \angle BCD = 180^0 + \angle CDE$

3. In the given figure a || b and c || d.

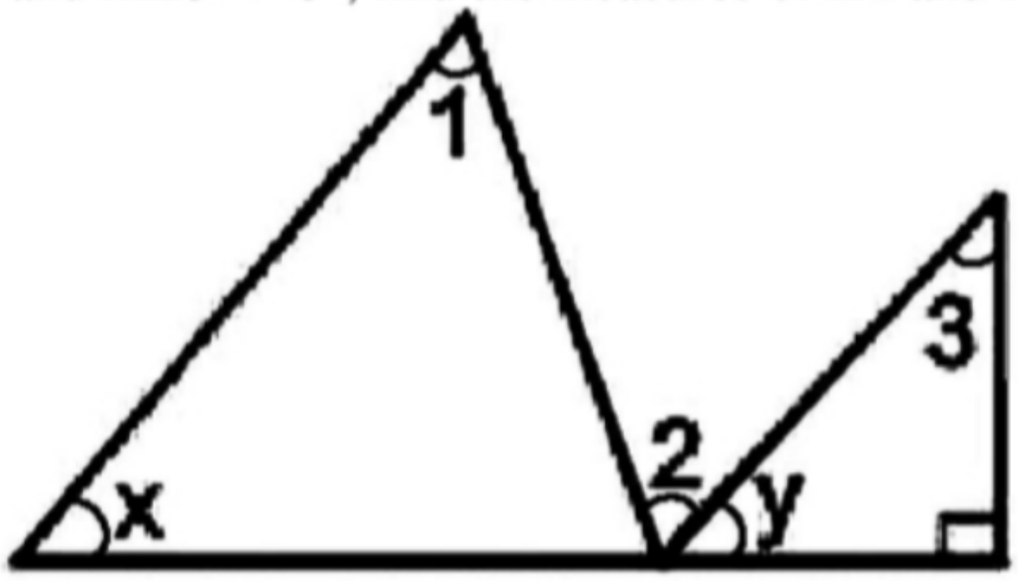
(i) Name all the angles equal to $\angle 5$. Justify the your answer

(ii) Name all angles supplementary to $\angle 8$. Justify the your answer

(iii) If $\angle 4 = 110^0$, then find all other angles. What all properties of parallel lines you have used here?

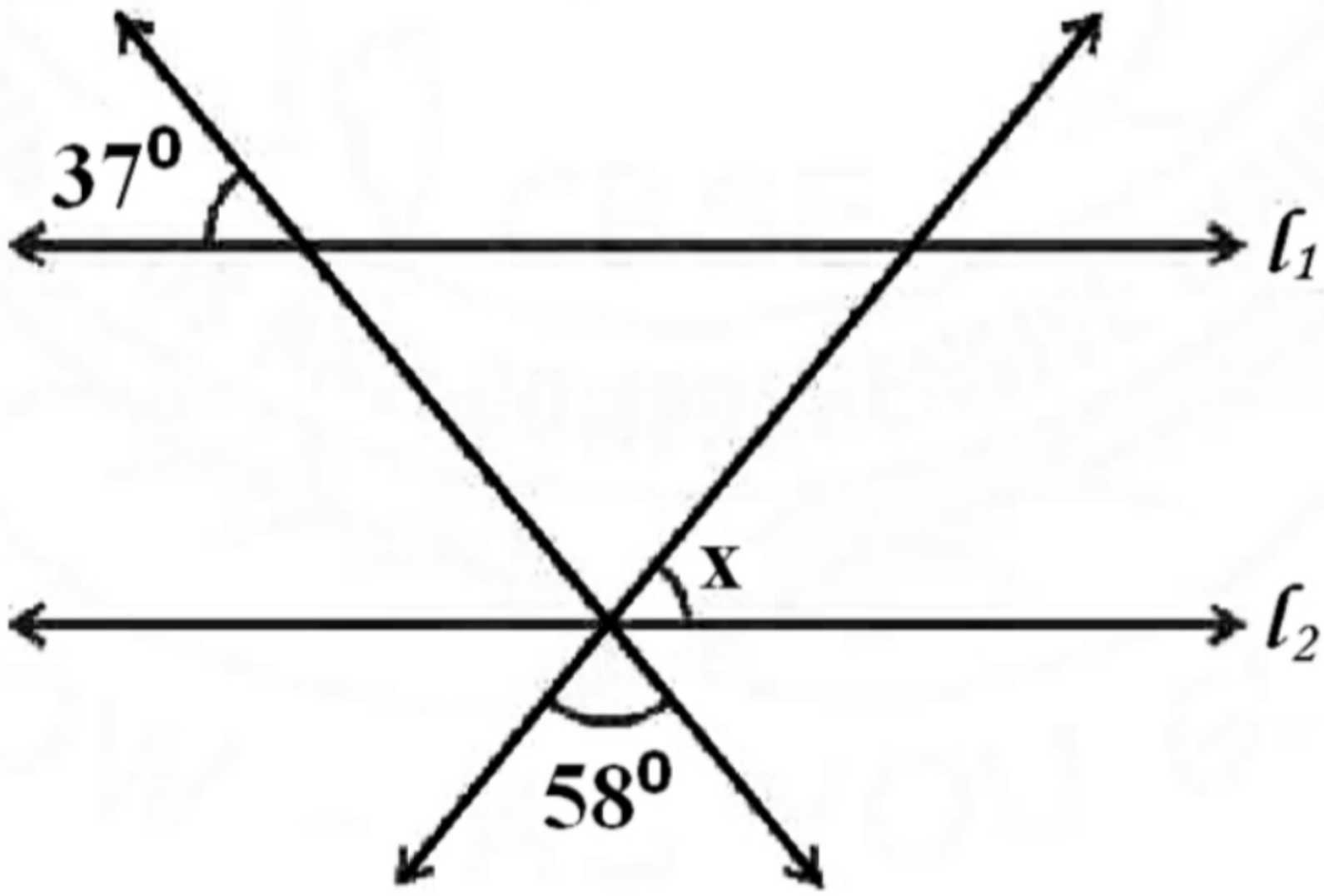


4. If $m\angle 1=53^0$, $m\angle 2 = 65^0$ and $m\angle 3 = 43^0$, find the measures of $\angle x$ and $\angle y$. Justify your answer.



6. In figure, if $l_1 \parallel l_2$, what is the value of x

(a) 90^0 (b) 85^0 c) 75^0 (d) 70^0



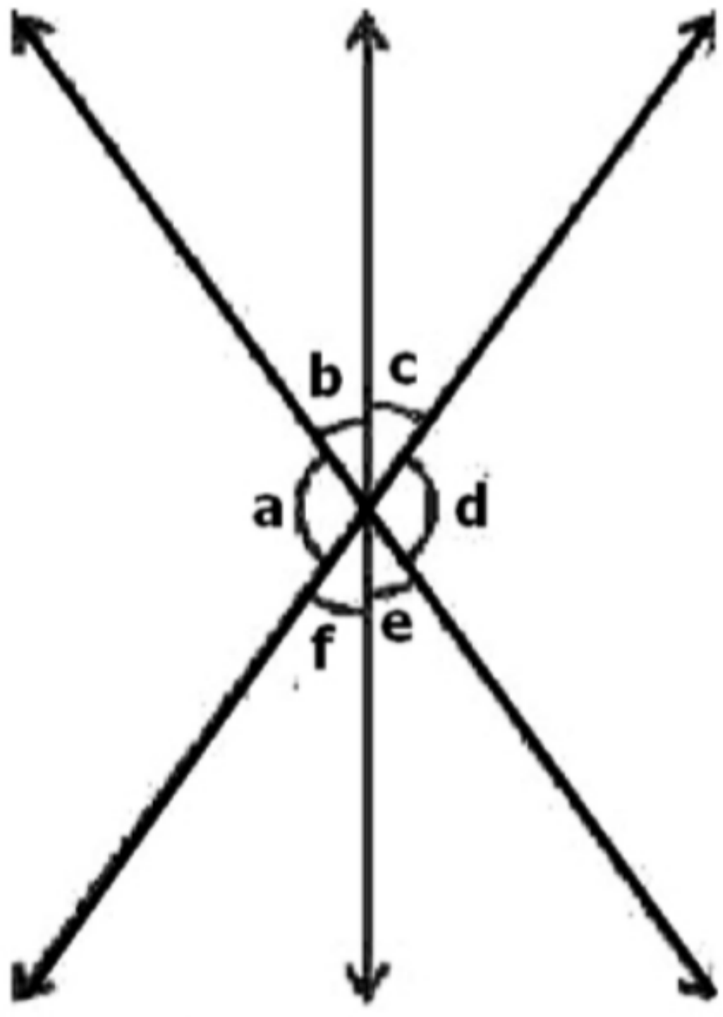
7. If a wheel has six spokes equally spaced, then the measure of the angle between two adjacent spokes is

(a) 90^0 (b) 30^0 c) 60^0 (d) 180^0

8. In figure, which of the following statements must be true?

(i) $a + b = d + c$ (ii) $a + c + e = 180^0$ (iii) $b + f = c + e$

(a) (i) only (b) (ii) only c) (iii) only (d) (ii) and (iii) both



9. The angle which is two times its complement is

(a) 60^0 (b) 30^0 c) 45^0 (d) 72^0

10. The angle which is two times its supplement is

(a) 150^0 (b) 60^0 c) 90^0 (d) 120^0

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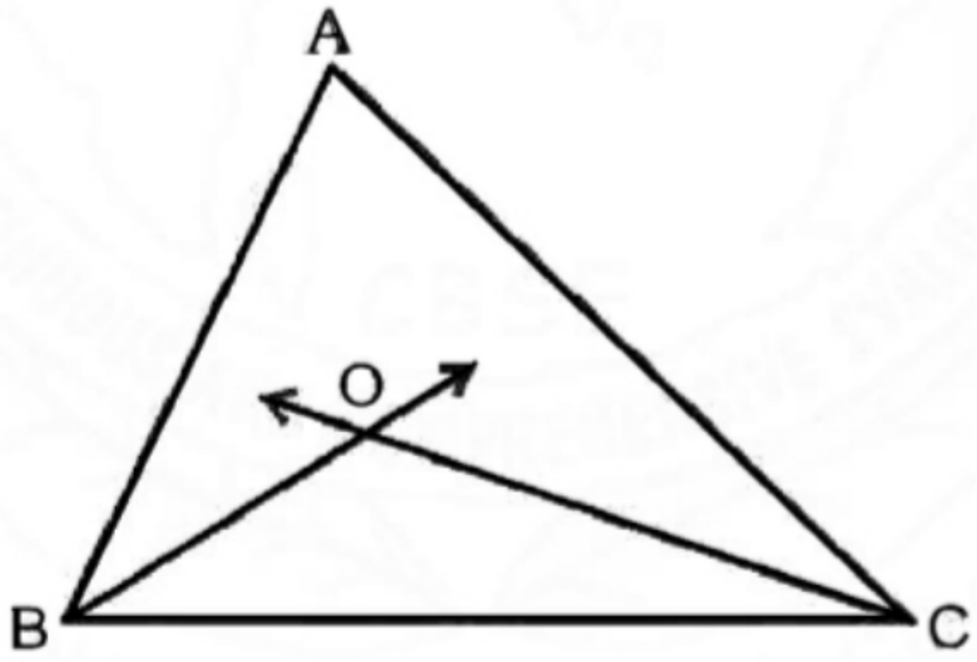
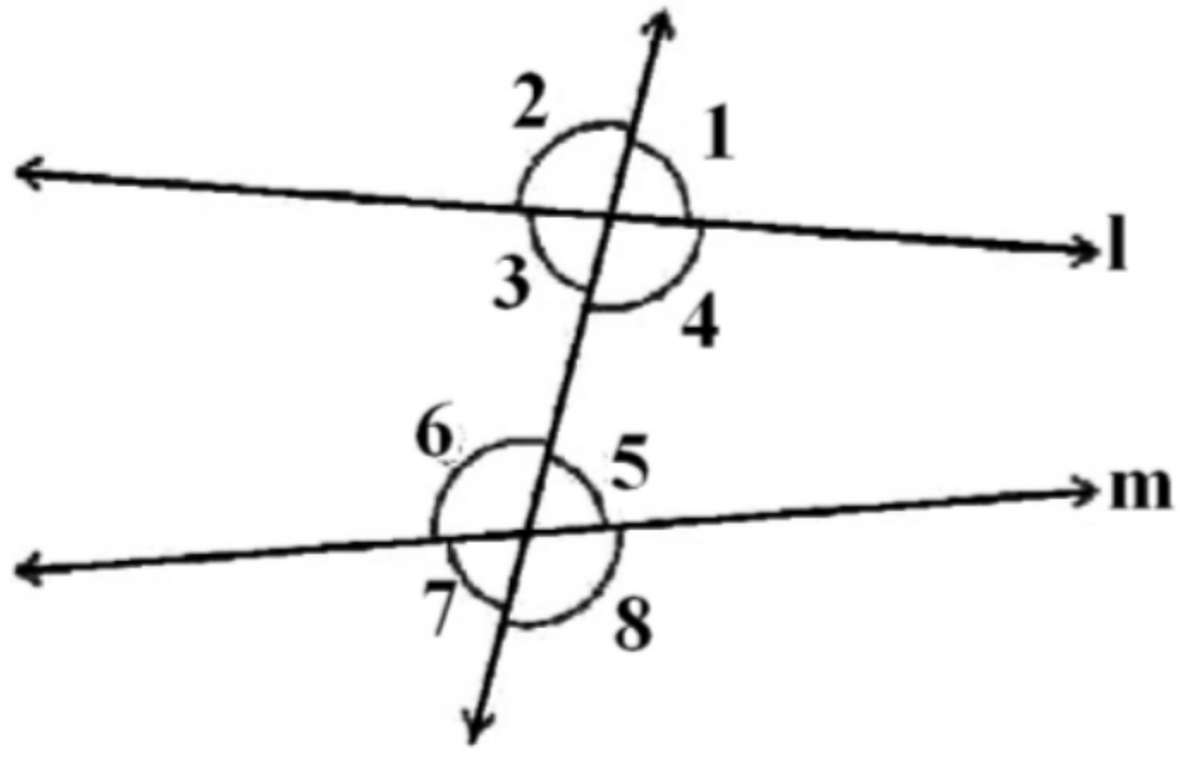
LINES AND ANGLES

1. What is the common between the three angles of a triangle and a linear pair
(a) angles are equal (b) in both cases sum of angle is 180^0.
(c) In triangle there are three angles and in linear pair there are two angles (d) none of these.

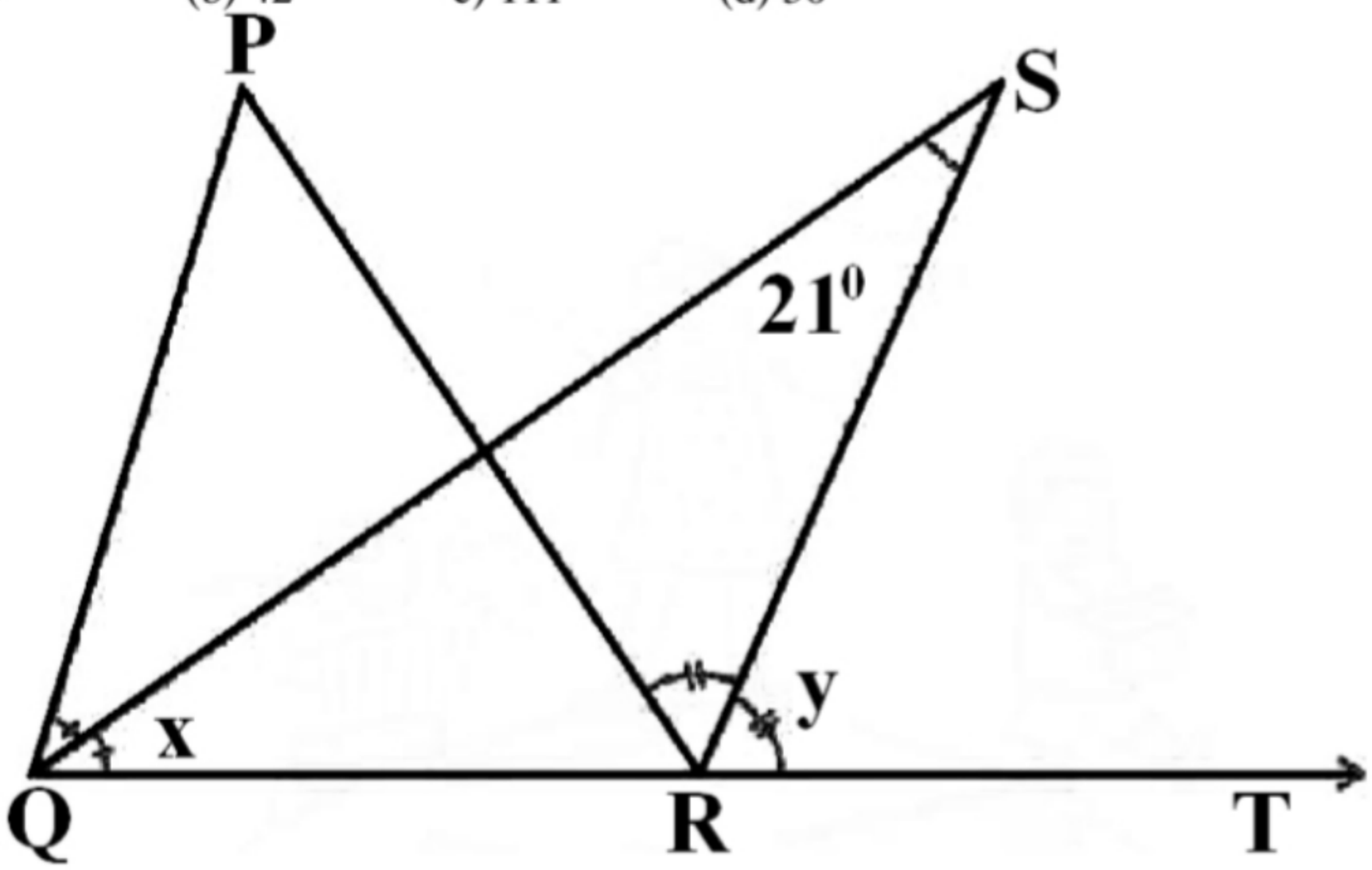
2. In the given below left figure, the bisectors of $\angle ABC$ and $\angle BCA$, intersect each other at point O. If $\angle BOC = 100^0$, the $\angle A$ is
(a) 30^0 (b) 20^0 c) 40^0 (d) 50^0





3. In the given above right sided figure, $\angle 2$ and $\angle 8$ are known as
(a) exterior angles (b) exterior angles on the same side of transversal.
(c) alternate angles (d) alternate exterior angles.

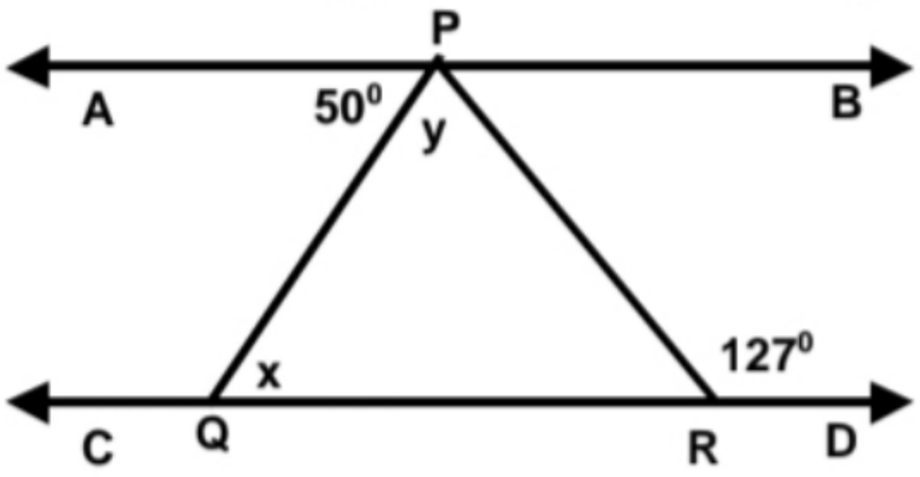
4. In the given figure, measure of $\angle QPR$ is
(a) 10.5^0 (b) 42^0 c) 111^0 (d) 50^0



5. An angle is 200 more than three times the given angle. If the two angles are supplementary the angles are
(a) 20^0 and 160^0 (b) 40^0 and 140^0 c) 60^0 and 120^0 (d) 70^0 and 110^0

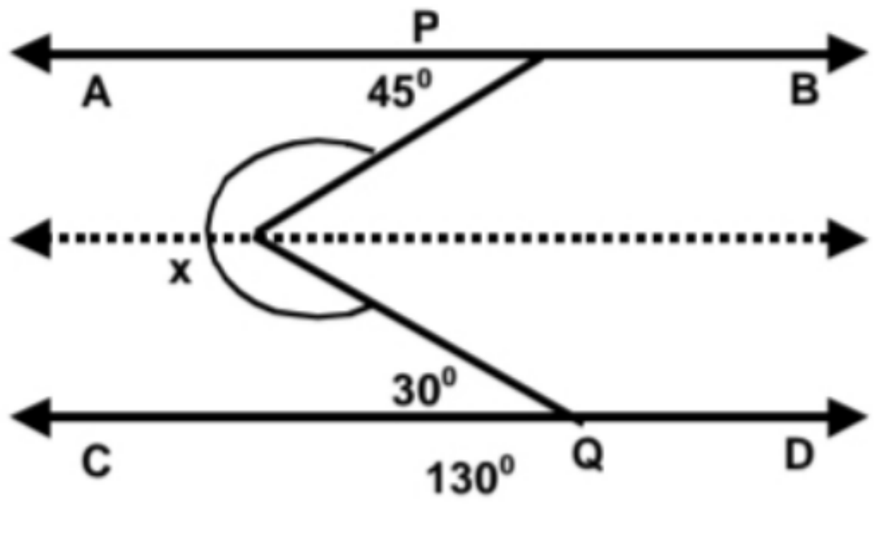
6. In fig., AB || CD, $\angle APQ = 50^0$, $\angle PRD = 127^0$, then the value of x and y respectively are

(a) 50^0 and 77^0 (b) 40^0 and 85^0 c) 60^0 and 90^0 (d) 85^0 and 75^0



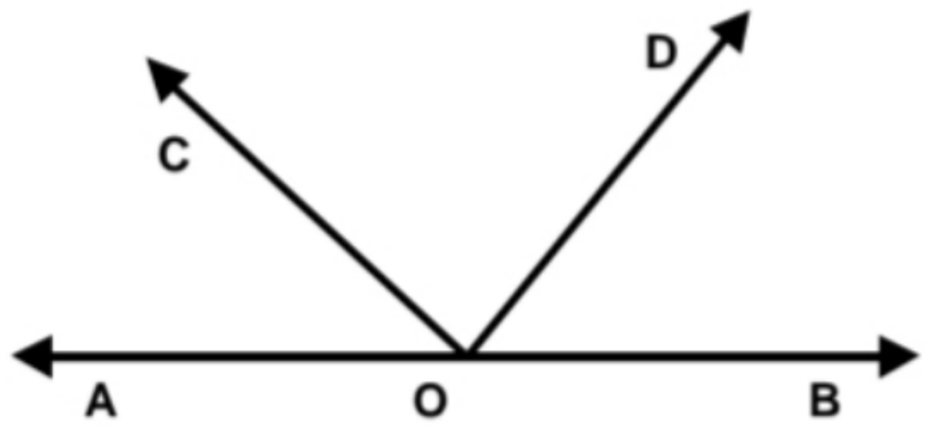
7. In fig, AB || CD, the value of x is:

(a) 185^0 (b) 280^0 c) 285^0 (d) 195^0



8. In fig, if $\angle AOC$, $\angle COD$ are equal and $\angle BOD$ is a right angle, then the values of $\angle AOC$ and $\angle COD$ are:

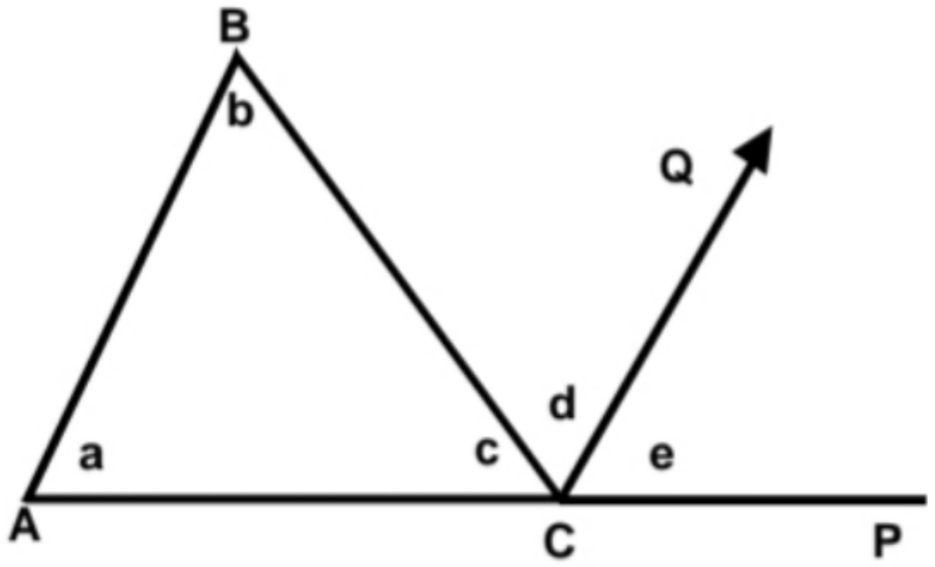
(a) 60^0 (b) 30^0 c) 45^0 (d) 90^0



9. In fig, the sum of $\angle a$ and $\angle b$ is:

(a) $\angle c + \angle d$ (b) $\angle d + \angle e$

(c) $\angle b + \angle c$ (d) $\angle a + \angle c$



10. In triangle interior opposite angle is always less than:

(a) any angle of the triangle (b) opposite angle

(c) right angle (d) exterior angle

11. In a triangle sum of two interior opposite angles is always equal to:

(a) third angle (b) opposite angle

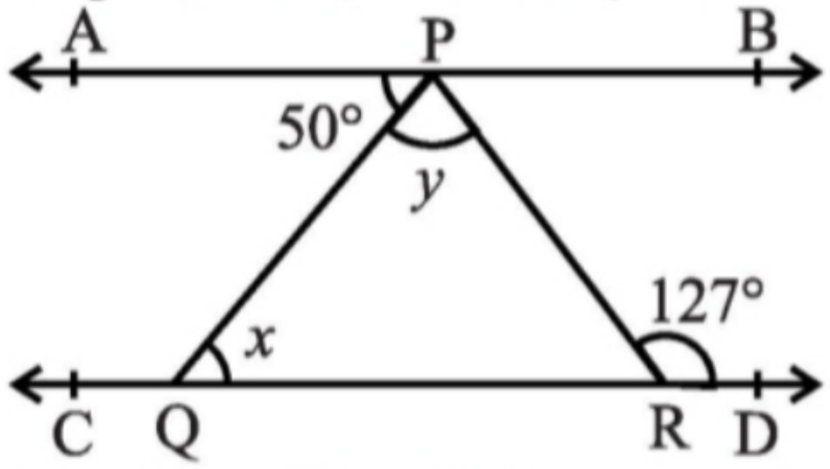
(c) right angle (d) none of these

12. In a triangle exterior angle is always greater than:

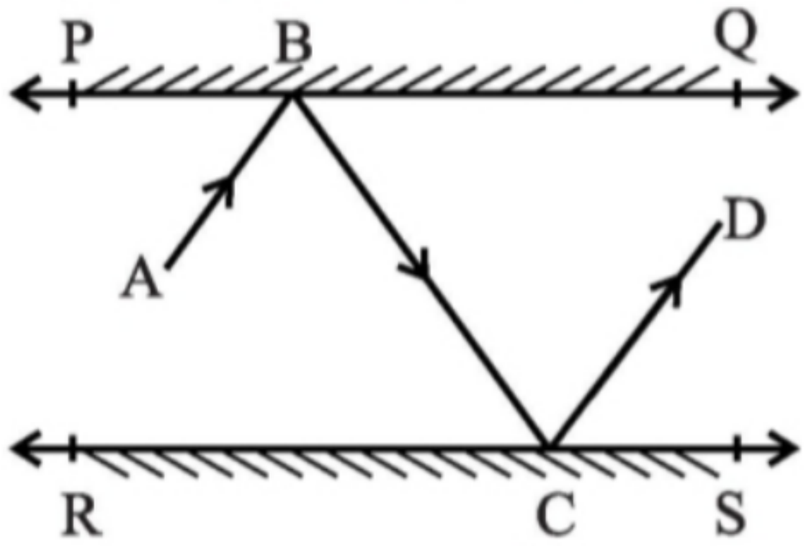
(a) third angle (b) interior opposite angles

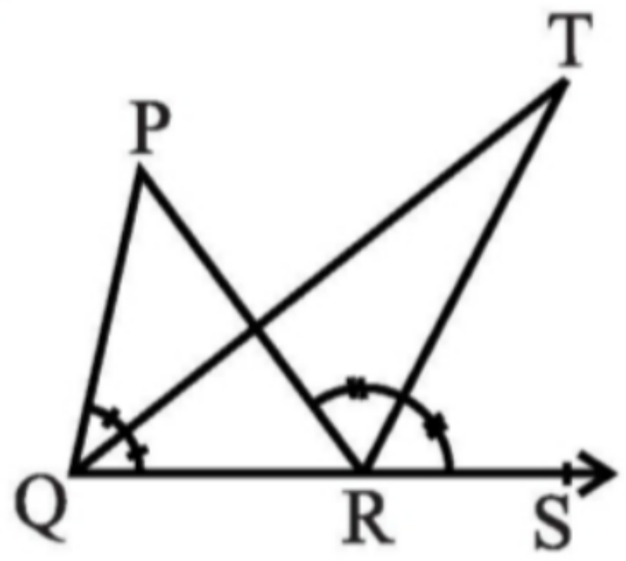
(c) right angle (d) none of these

26. In the below figure, if AB || CD, $\angle APQ = 50°$ and $\angle PRD = 127°$, find x and y.



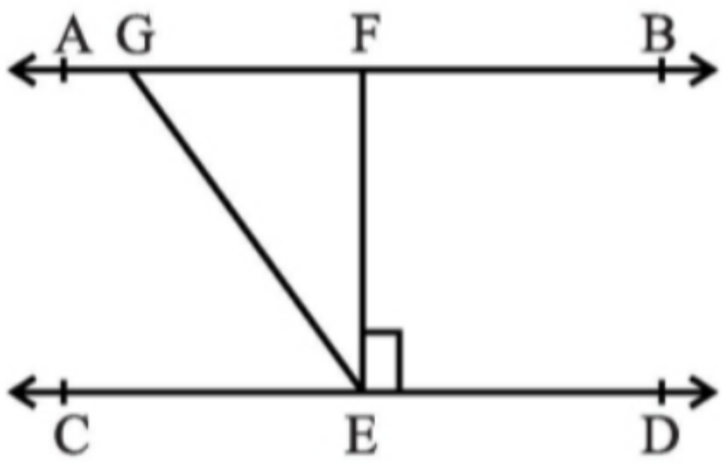
27. In the adjoining figure, PQ and RS are two mirrors placed parallel to each other. An incident ray AB strikes the mirror PQ at B, the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD. Prove that AB || CD.

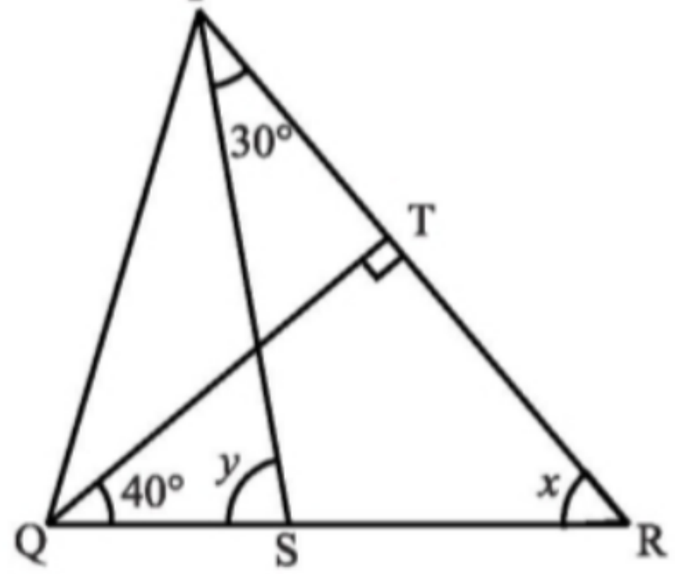




28. In the above right sided figure, the side QR of . PQR is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then prove that $\angle QTR = \frac{1}{2}\angle QPR$.

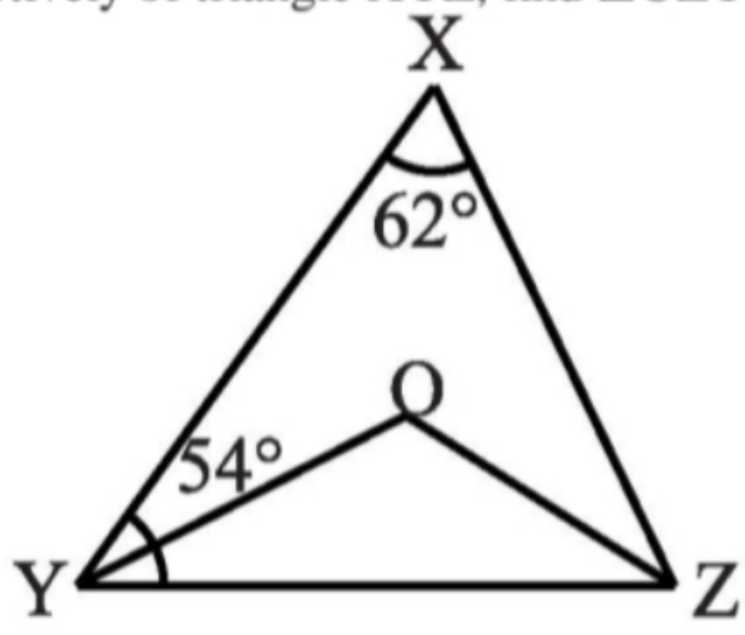
29. In below figure, if AB || CD, EF $\perp$ CD and $\angle GED = 126°$, find $\angle AGE$, $\angle GEF$ and $\angle FGE$.

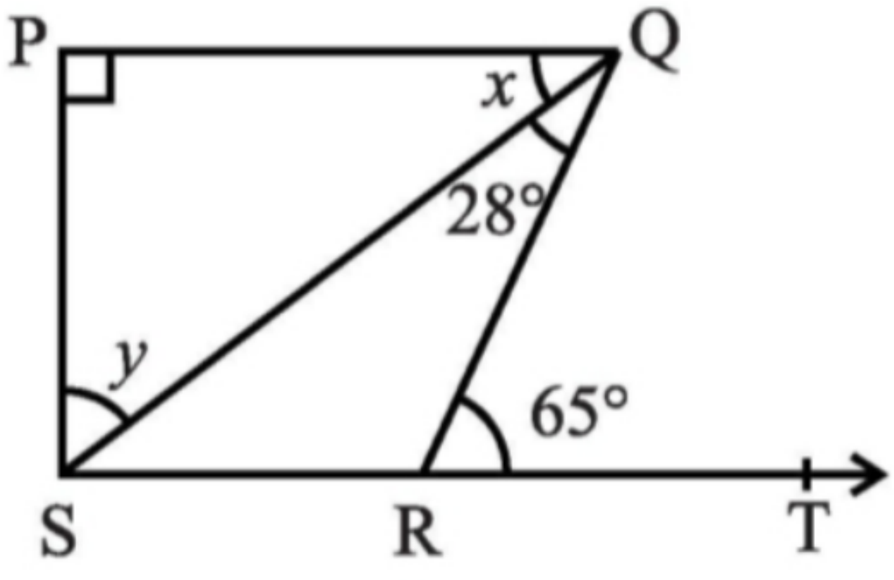




30. In the above right sided figure, if QT $\perp$ PR, $\angle TQR = 40°$ and $\angle SPR = 30°$, find x and y.

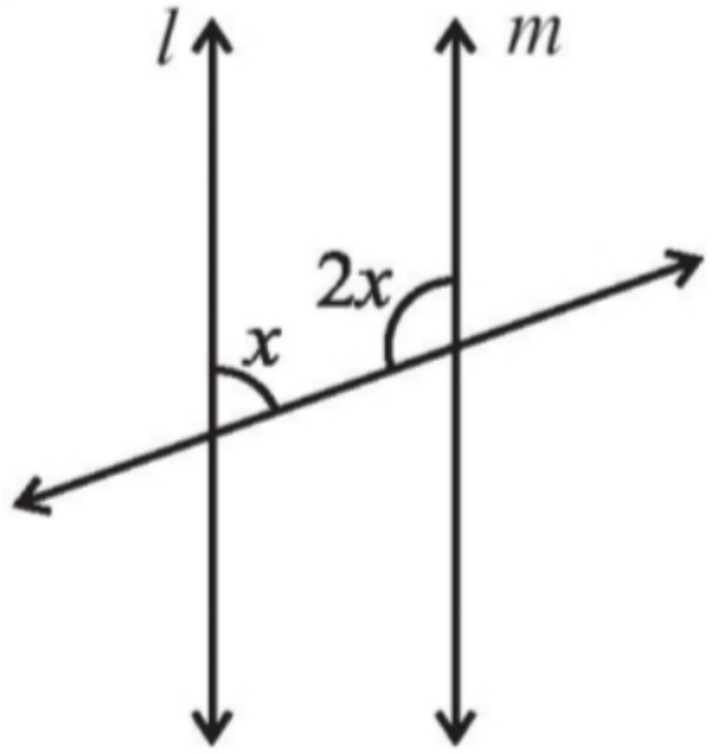
31. In below figure, $\angle X = 62°$, $\angle XYZ = 54°$. If YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of triangle XYZ, find $\angle OZY$ and $\angle YOZ$.



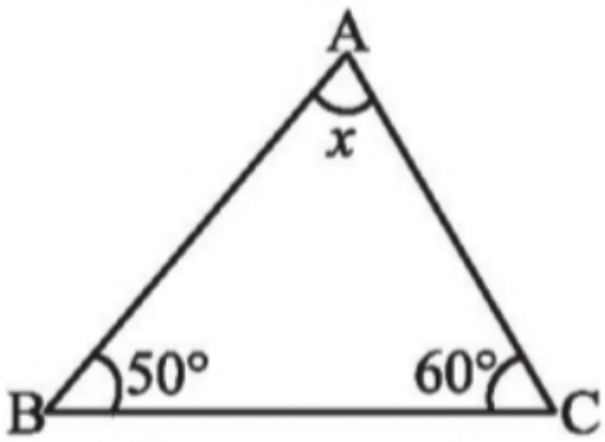


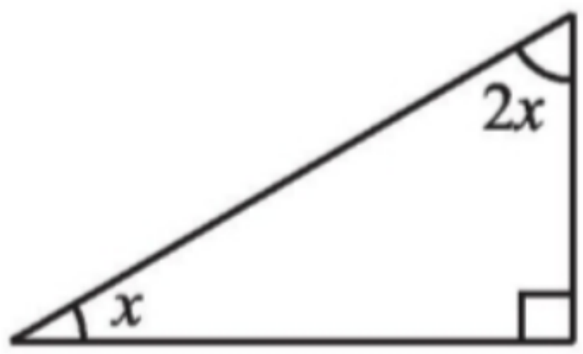
32. In the above right sided figure, if PQ $\perp$ PS, PQ || SR, $\angle$ SQR = 28° and $\angle QRT = 65°$, then find the values of x and y.

19. Find the value of x in below figure if $l \parallel m$.



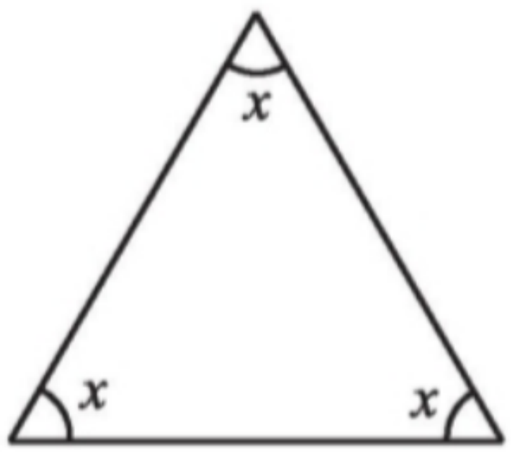
20. Find the value of the unknown x in the below figure.

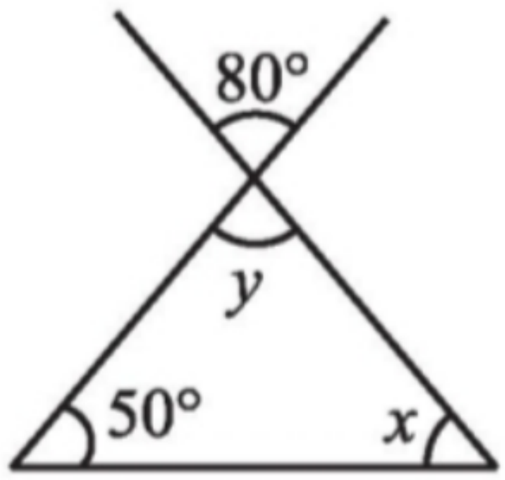




21. Find the value of the unknown x in the above right sided figure.

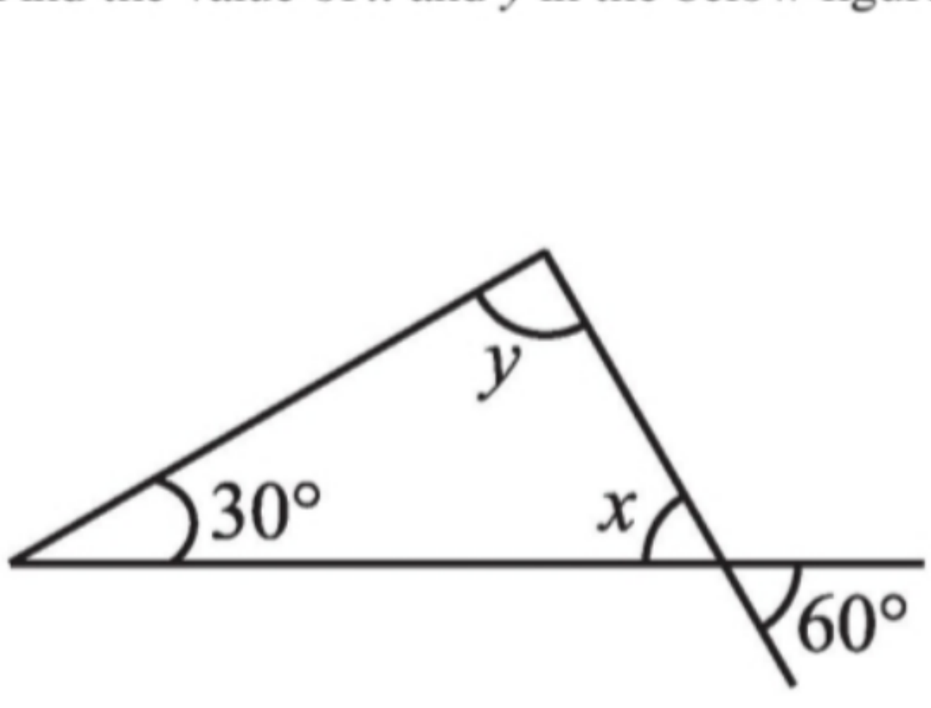
22. Find the value of the unknown x in the below figure.

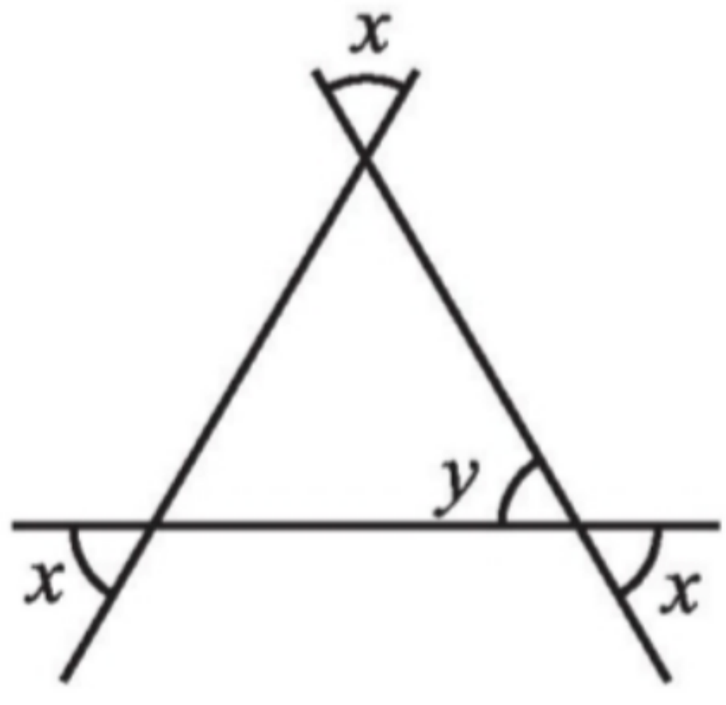




23. Find the value of x and y in the above right sided figure.

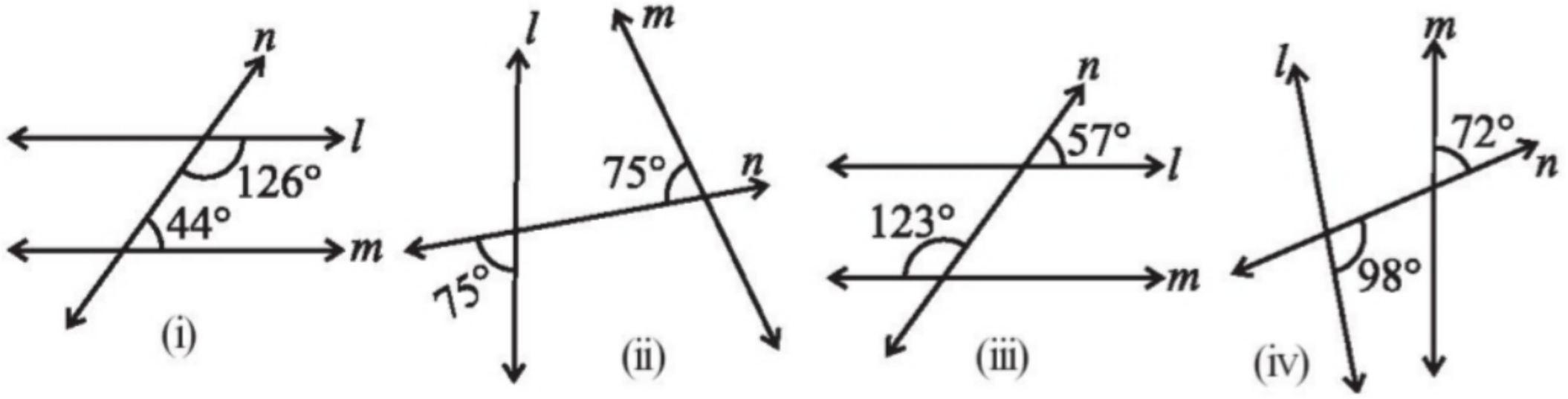
24. Find the value of x and y in the below figure.





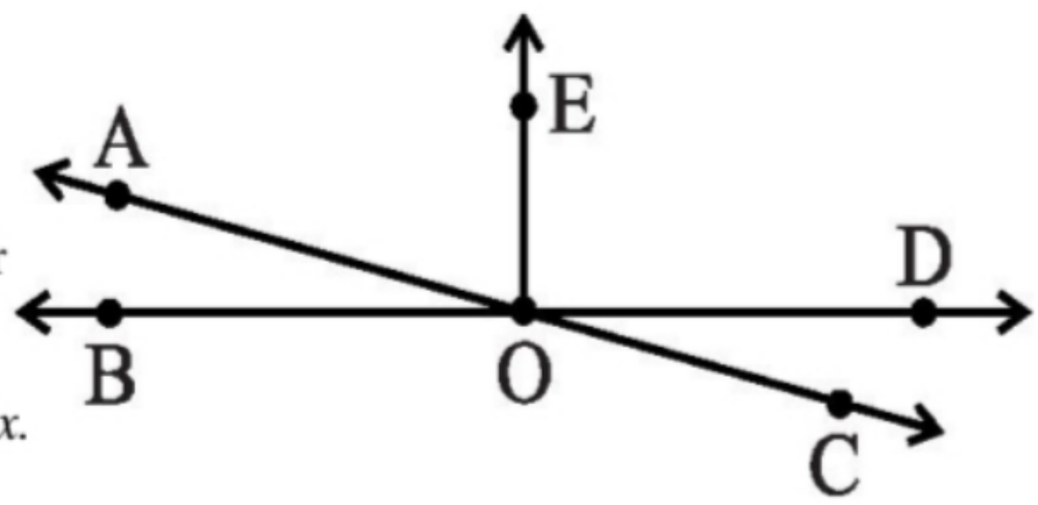
25. Find the value of x and y in the above right sided figure.

12. In the given figures below, decide whether l is parallel to m.

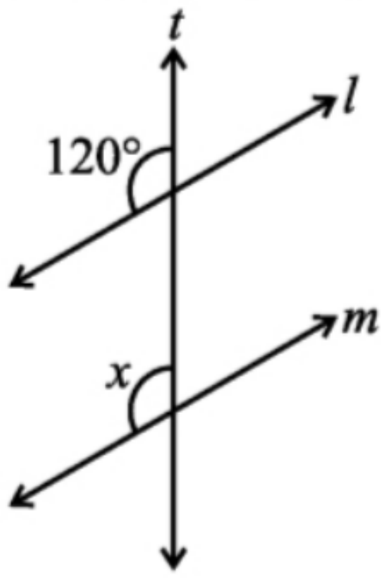


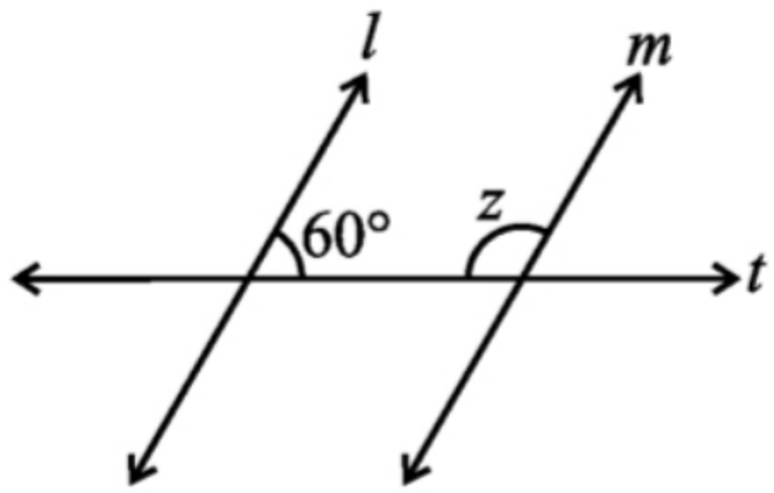
13. In the adjoining figure, name the following pairs of angles.

(i) Obtuse vertically opposite angles
(ii) Adjacent complementary angles
(iii) Equal supplementary angles
(iv) Unequal supplementary angles
(v) Adjacent angles that do not form a linear pair



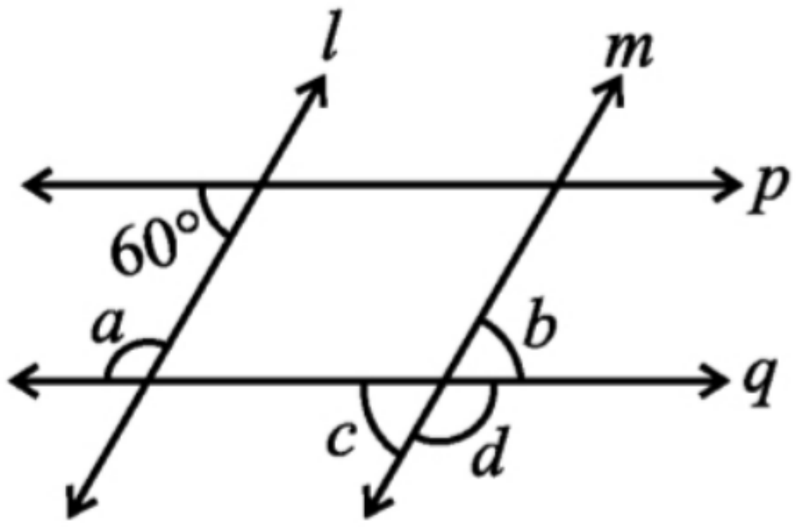
14. Lines $l \parallel m$; t is a transversal Find the value of $\angle x$.

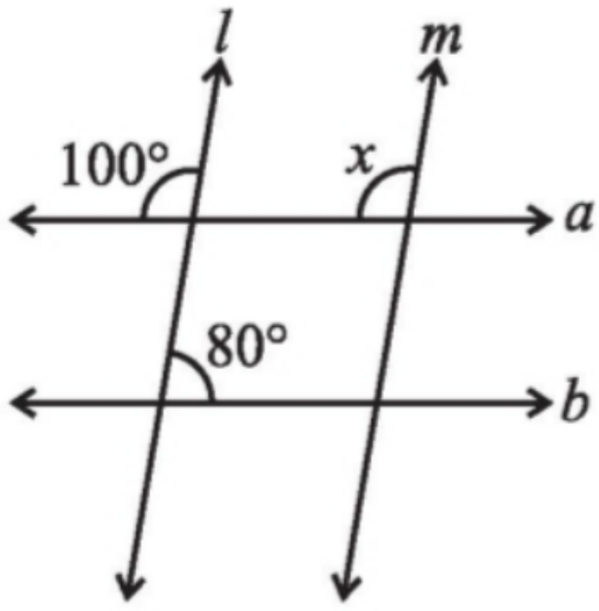




15. Lines $l \parallel m$; t is a transversal in the above right sided figure. Find the value of $\angle z$

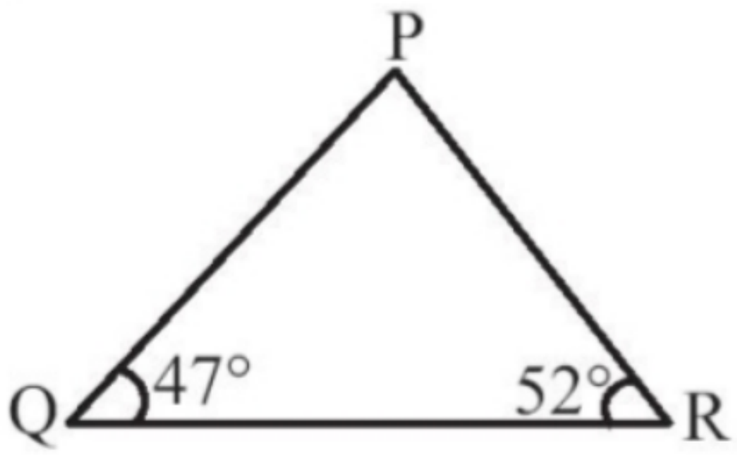
16. Lines $l \parallel m$, $p \parallel q$; Find a, b, c, d



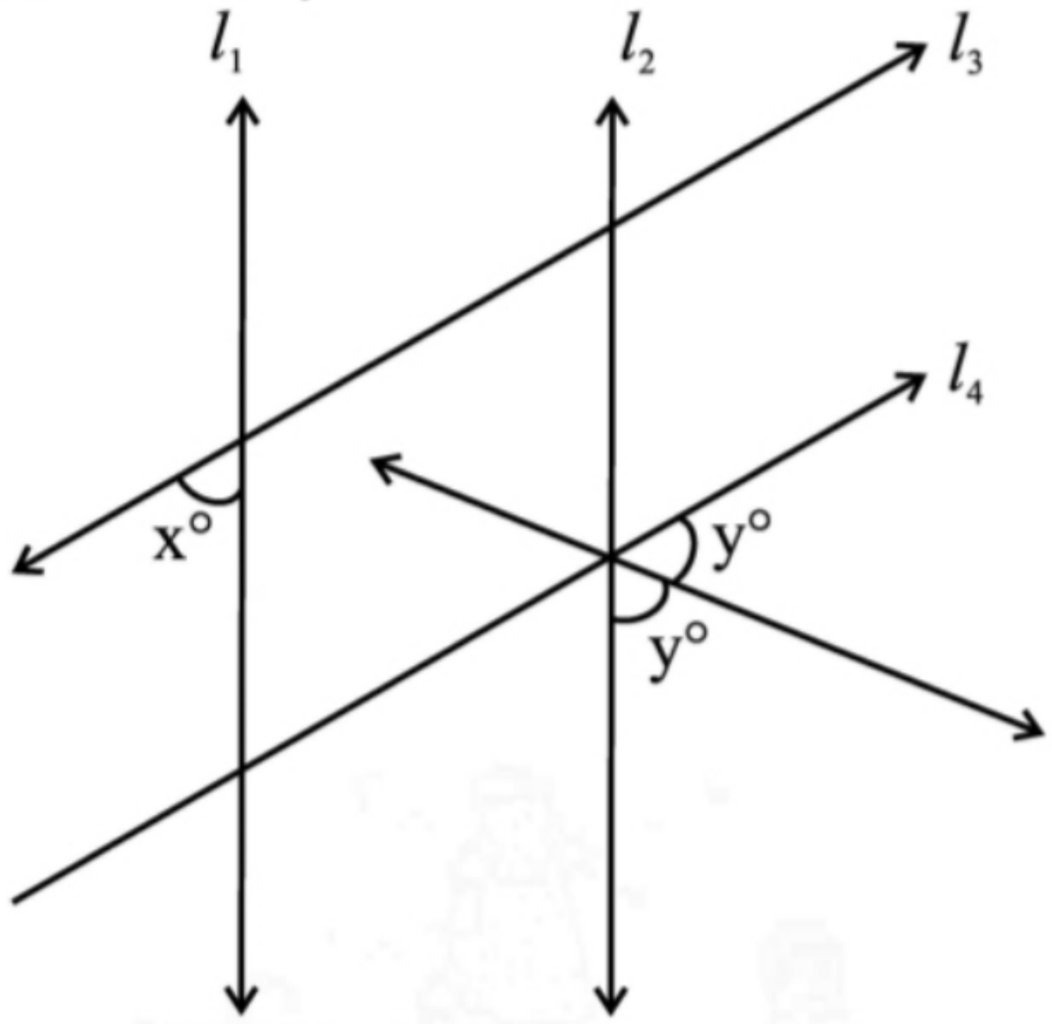


17. Find the value of x in the above right sided figure if $l \parallel m$.

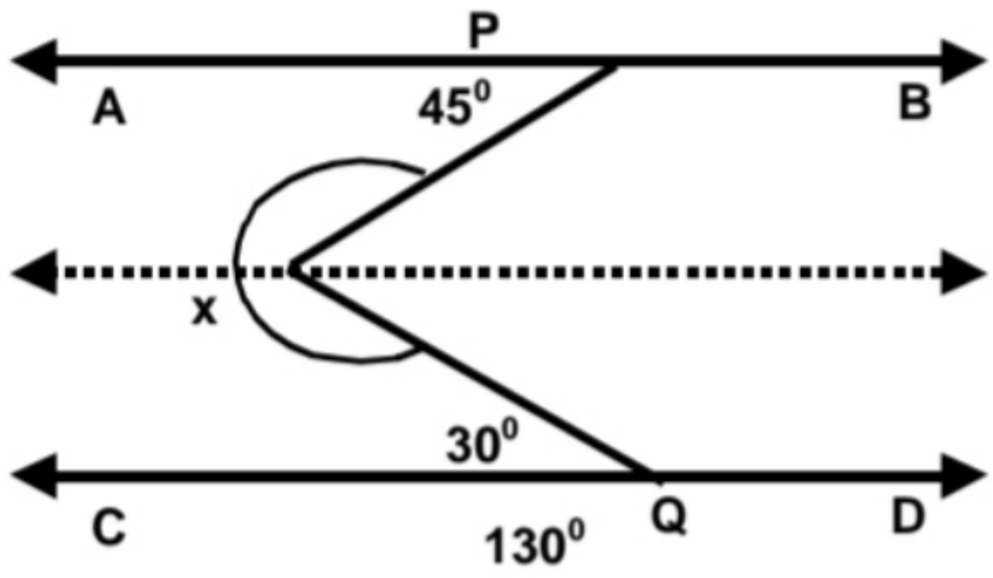
18. In the given figure, find m$\angle$P.



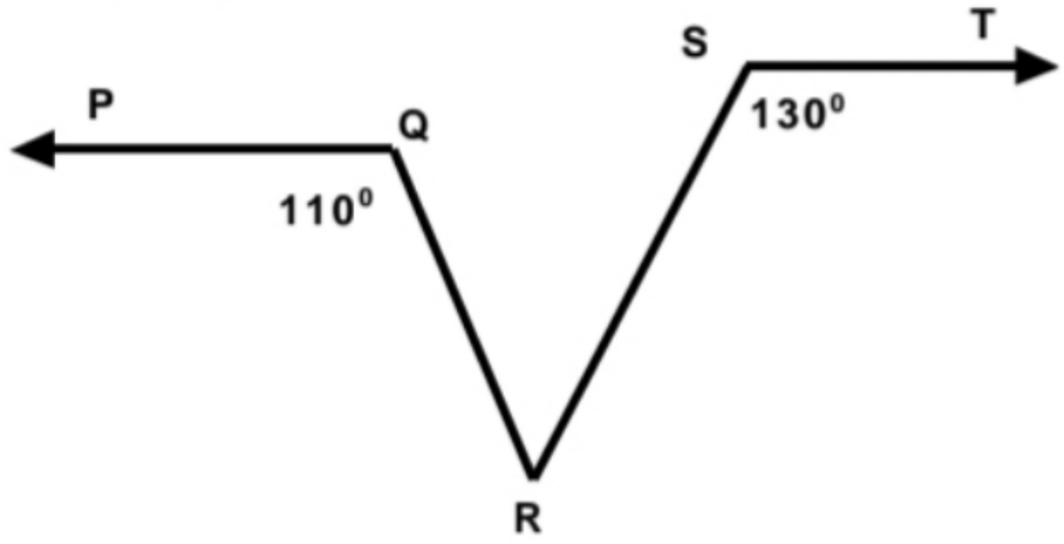
5. In figure, if $l_1 \parallel l_2$ and $l_3 \parallel l_4$. What is y in terms of x?



6. In fig, find the value of x



7. In fig, if PQ || ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$ then find the value of $\angle QRS$.



8. An angle is greater than 45°. Is its complementary angle greater than 45° or equal to 45° or less than 45°?

9. Prove that "The sum of all interior angles of a triangle is 180^0".

10. One of the angles of a triangle is 80° and the other two angles are equal. Find the measure of each of the equal angles.

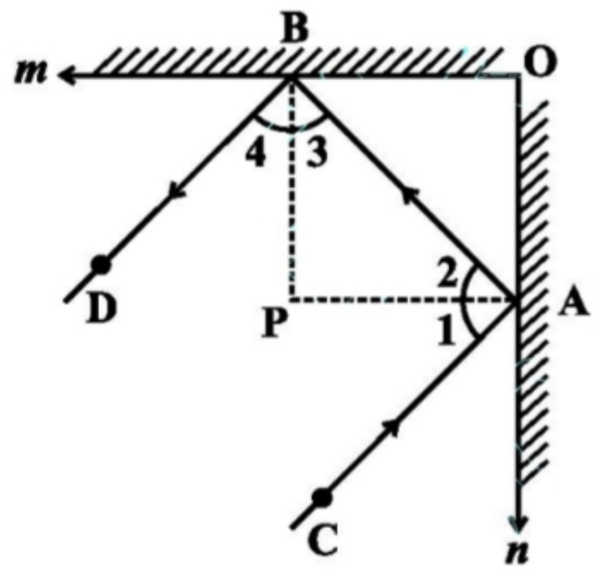
11. The three angles of a triangle are in the ratio 1:2:1. Find all the angles of the triangle.

44. The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles of the triangle.

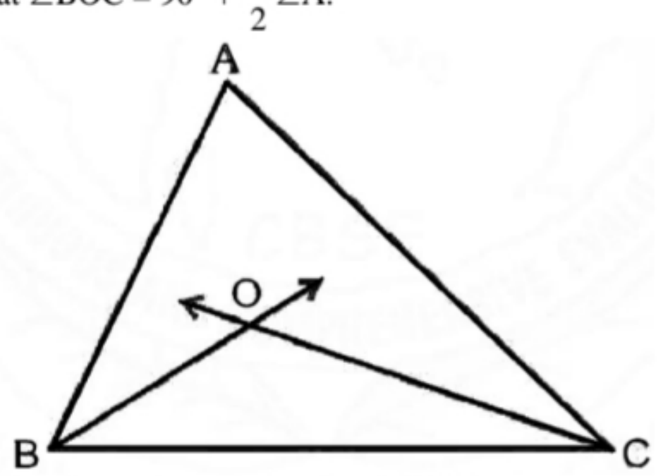
45. A triangle ABC is right angled at A. L is a point on BC such that AL ⊥ BC. Prove that ∠BAL = ∠ACB.

46. Two lines are respectively perpendicular to two parallel lines. Show that they are parallel to each other.

47. In the below Figure, *m* and *n* are two plane mirrors perpendicular to each other. Show that incident ray CA is parallel to reflected ray BD.



48. Bisectors of angles B and C of a triangle ABC intersect each other at the point O(see above right sided figure). Prove that $\angle BOC = 90° + \frac{1}{2}\angle A$.



49. Bisectors of interior ∠B and exterior ∠ACD of a ΔABC intersect at the point T. Prove that $\angle BTC = \frac{1}{2}\angle BAC$.

50. A transversal intersects two parallel lines. Prove that the bisectors of any pair of corresponding angles so formed are parallel.

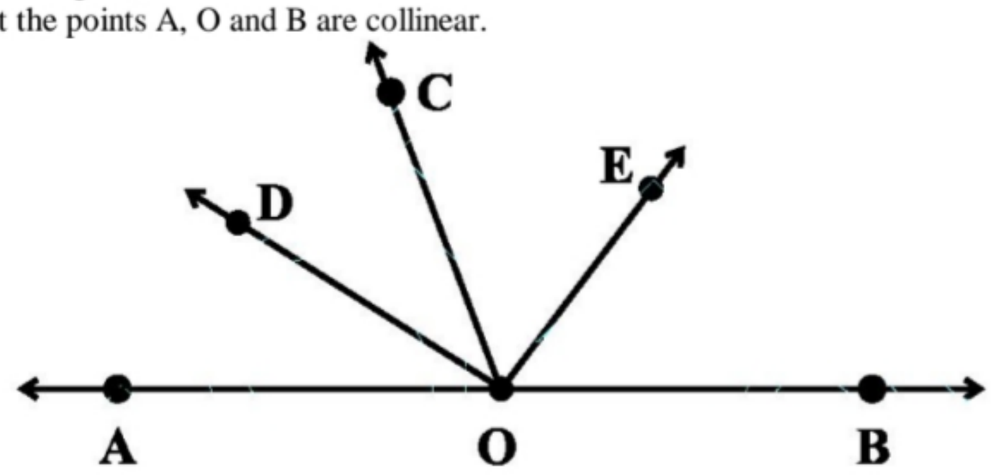
51. Prove that through a given point, we can draw only one perpendicular to a given line.

52. Prove that two lines that are respectively perpendicular to two intersecting lines intersect each other.

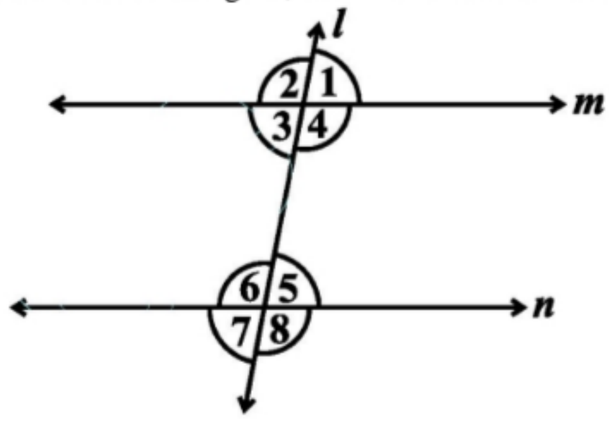
53. Prove that a triangle must have at least two acute angles.

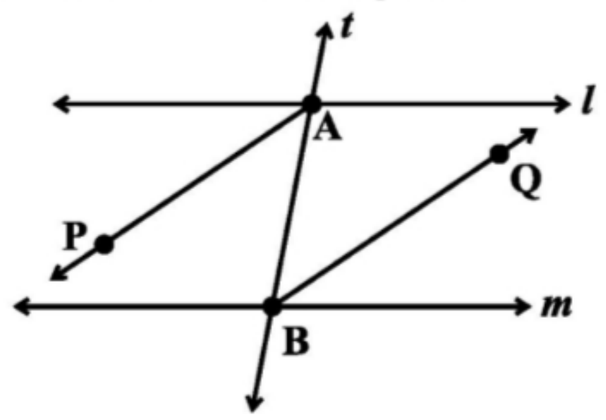
54. In the below Figure, ∠Q >∠R, PA is the bisector of ∠QPR and PM ⊥ QR. Prove that ∠APM = $\frac{1}{2}$ (∠Q – ∠R).

38. In the below 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.



39. In the below Figure, ∠1 = 60° and ∠6 = 120°. Show that the lines *m* and *n* are parallel.

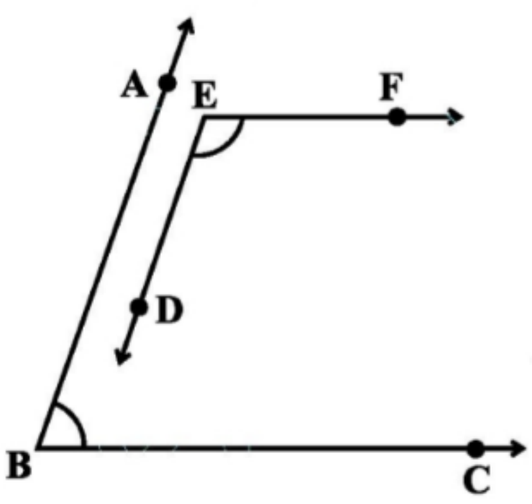


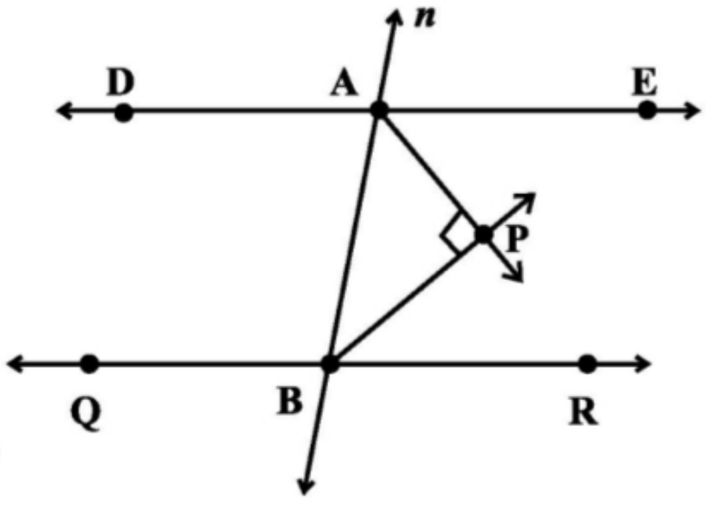


40. AP and BQ are the bisectors of the two alternate interior angles formed by the intersection of a transversal *t* with parallel lines *l* and *m* (see above right sided Figure). Show that AP || BQ.

41. If in the above right sided Figure for Q40, bisectors AP and BQ of the alternate interior angles are parallel, then show that *l* || *m*.

42. In the below Figure, BA || ED and BC || EF. Show that ∠ABC = ∠DEF





43. In the above right sided Figure, DE || QR and AP and BP are bisectors of ∠EAB and ∠RBA, respectively. Find ∠APB.

44. The angles of a triangle are in the ratio 2 : 3 : 4. Find the angles of the triangle.

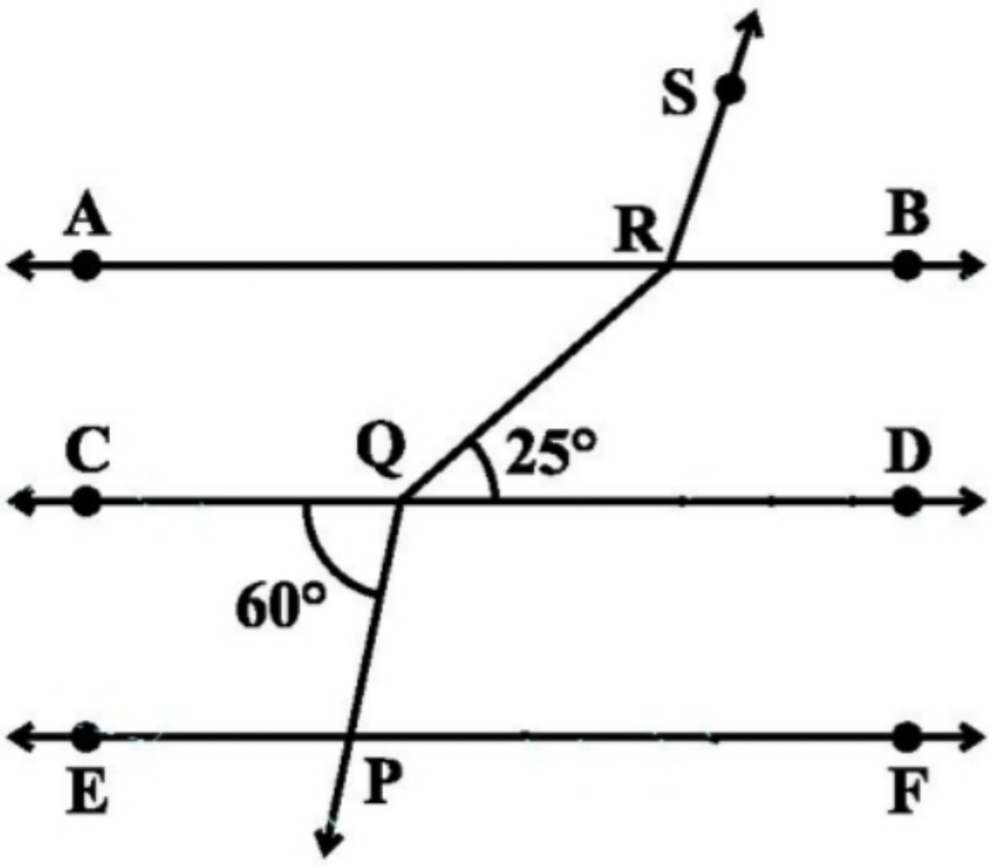
45. A triangle ABC is right angled at A. L is a point on BC such that AL ⊥ BC. Prove that ∠BAL = ∠ACB.

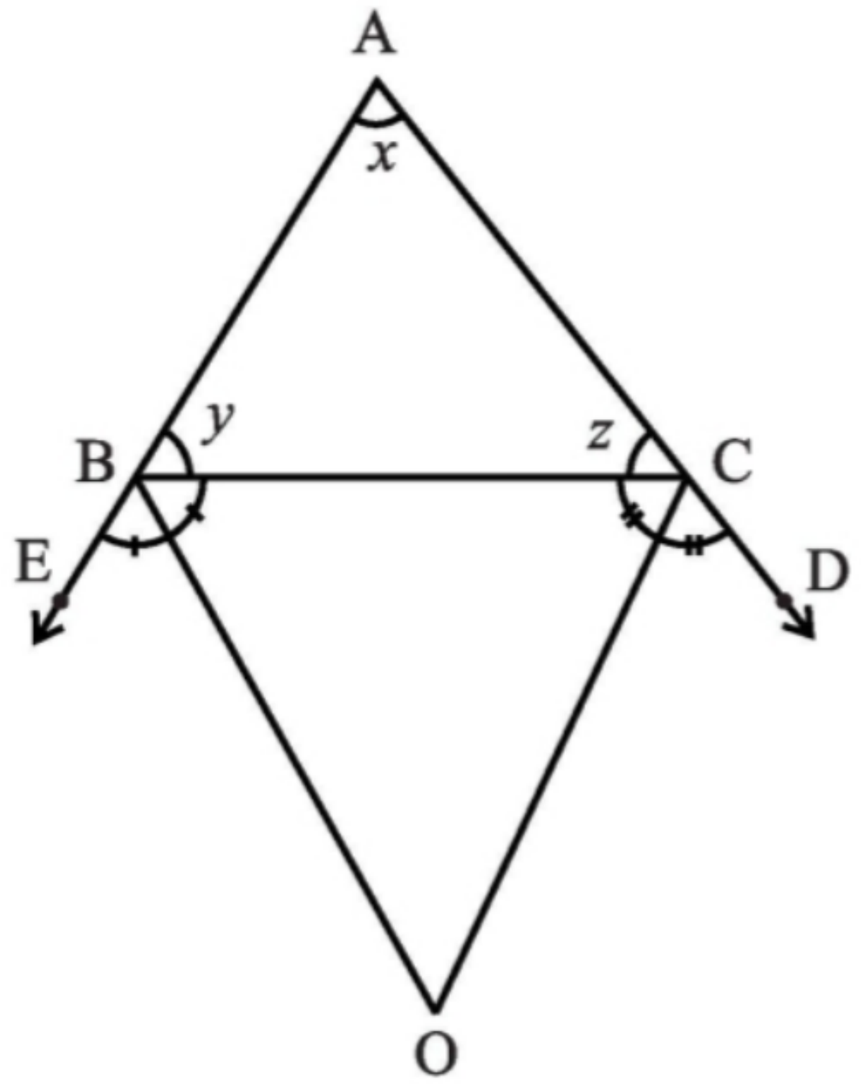
46. Two lines are respectively perpendicular to two parallel lines. Show that they are parallel to each other.

47. In the below Figure, *m* and *n* are two plane mirrors perpendicular to each other. Show that incident ray CA is parallel to reflected ray BD.

33. An exterior angle of a triangle is 105° and its two interior opposite angles are equal. Find the angles

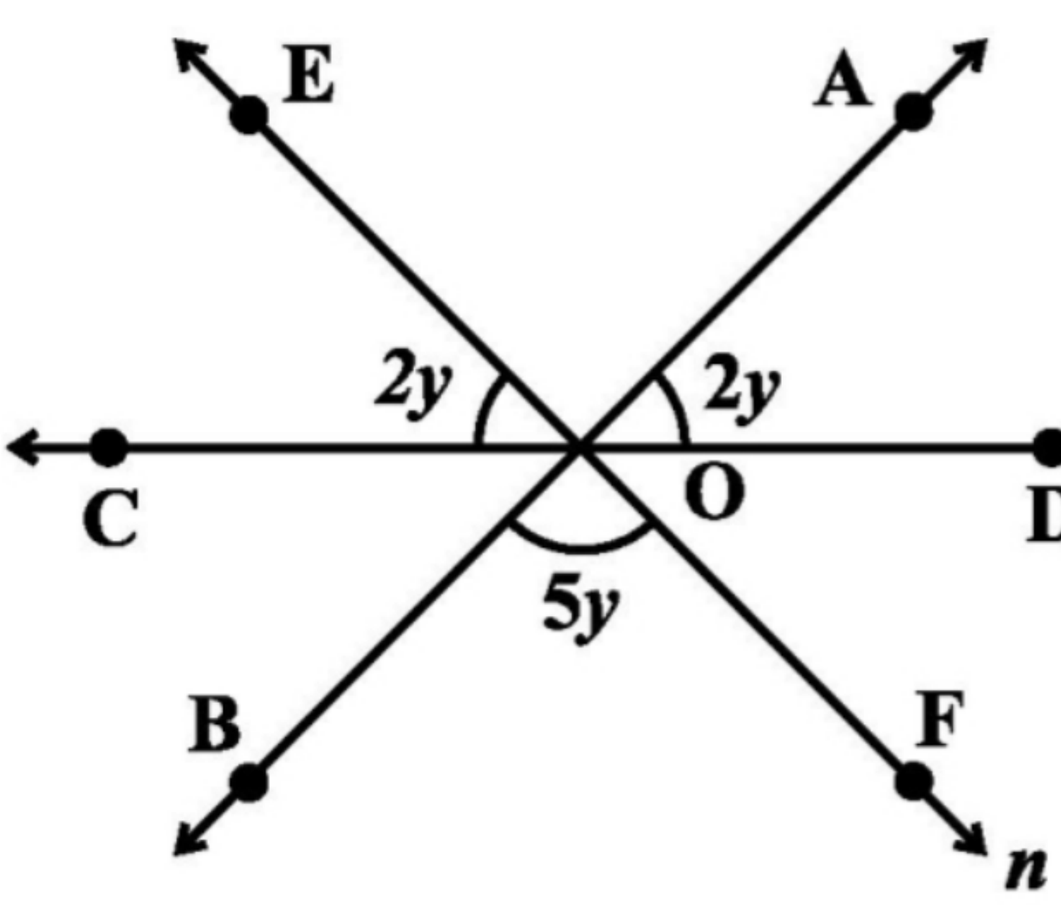
34. In the below Figure, if AB || CD || EF, PQ || RS, ∠RQD = 25° and ∠CQP = 60°, then find ∠QRS and ∠RQP

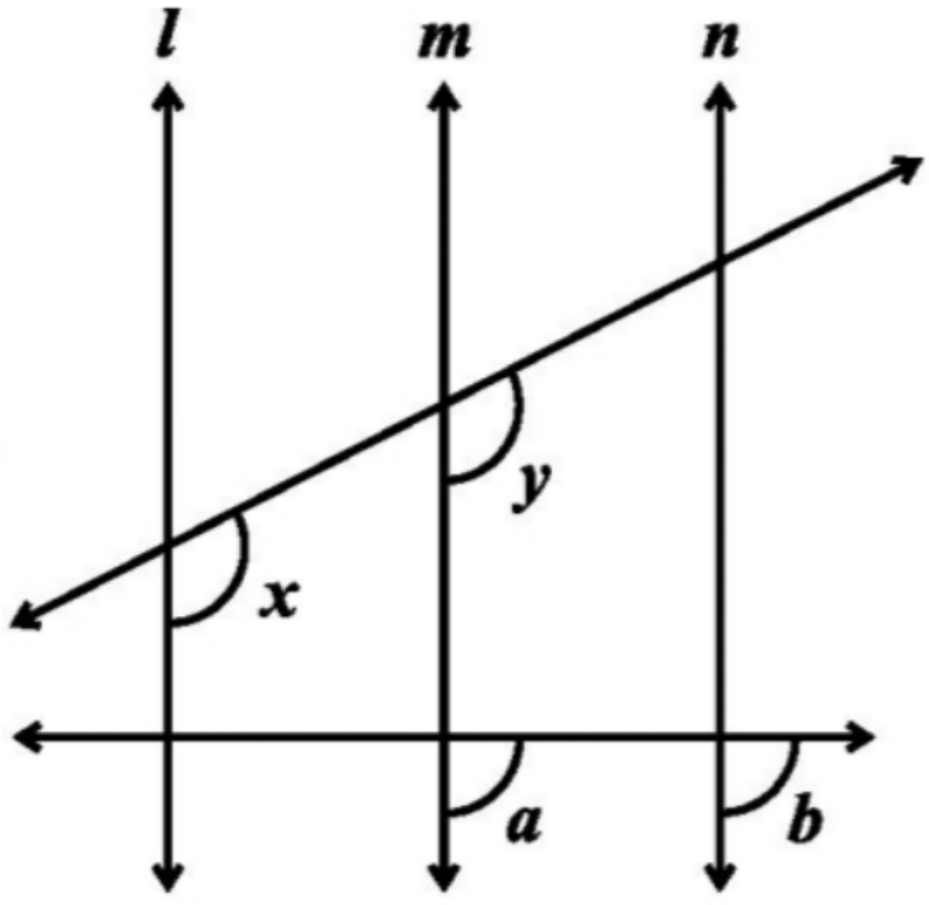




35. In the above right sided figure, the sides AB and AC of a triangle ABC are produced to points E and D respectively. If bisectors BO and CO of ∠CBE and ∠BCD respectively meet at point O, then prove that $\angle BOC = 90^0 - \frac{1}{2}\angle BAC$.

36. In the below Figure, AB, CD and EF are three lines concurrent at O. Find the value of *y*.

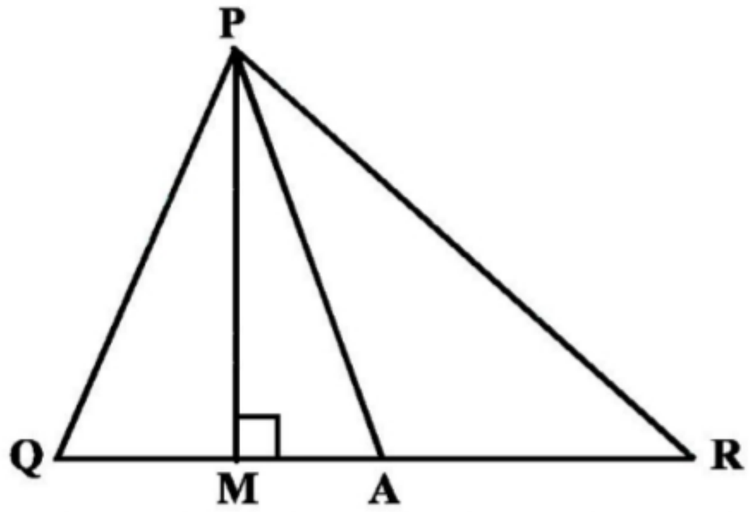




37. In the above right sided Figure, $x = y$ and $a = b$. Prove that $l \parallel n$.

53. Prove that a triangle must have at least two acute angles.

54. In the below Figure, $\angle Q > \angle R$, PA is the bisector of $\angle QPR$ and $PM \perp QR$. Prove that $\angle APM = \frac{1}{2}(\angle Q - \angle R)$.



55. If one of the angles of a triangle is 130°, then find the angle between the bisectors of the other two angles .

56. The angles of a triangle are in the ratio 5 : 3 : 7. Find the largest angle of the triangle.

57. Two adjacent angles are equal. Is it necessary that each of these angles will be a right angle? Justify your answer.

58. If one of the angles formed by two intersecting lines is a right angle, what can you say about the other three angles? Give reason for your answer.

59. Two lines l and m are perpendicular to the same line n. Are l and m perpendicular to each other? Give reason for your answer.

60. Angles of a triangle are in the ratio 2 : 4 : 3. find the smallest angle of the triangle.

MCQ WORKSHEET-I
CLASS IX: CHAPTER - 7
TRIANGLES

1. Line segment joining the mid point of any side with the opposite vertex is
(a) altitude (b) median (c) perpendicular bisector (d) angle bisector