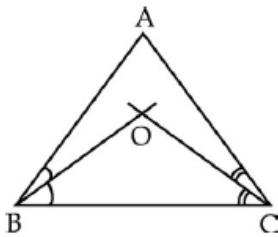




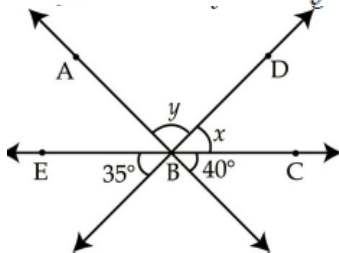
Class IX – Holiday Home Work

Lines & Angles, Coordinate Geometry and Polynomials (FA2 Portion)

1. If in a triangle ABC, $\angle A + \angle B = 108^\circ$, $\angle B + \angle C = 130^\circ$, find all the three angles.
An: $\angle A = 50^\circ$, $\angle B = 58^\circ$, $\angle C = 72^\circ$
2. Exterior angle of a triangle is 120° and one of its interior opposite angles is 40° . Find the other two angles of the triangle.
An: 80° , 60°
3. 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.
An : An: 54°
4. In figure, bisectors of two angles $\angle B$ and $\angle C$ of $\triangle ABC$ intersect each other at the point O. Prove that $\angle BOC = 90^\circ + \frac{1}{2}\angle A$



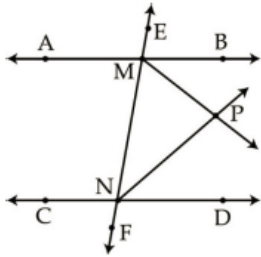
5. Find value of x and y in the figure :



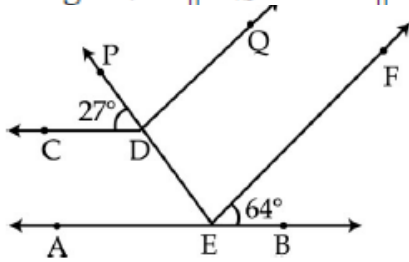
An: $x = 35^\circ$, $y = 105^\circ$

6. Plot the points $P(-1, 0)$, $Q(1, 2)$, $R(5, 2)$ and $S(3, 0)$ on a graph paper. Specify what kind of geometric figure PQRS is? Find the point of intersection of its diagonals.
An: Square, $(1, 1)$
7. Plot the points $A(2, 0)$, $B(2, 2)$, $C(0, 2)$ and $O(0, 0)$ and draw line segments OA, AB, BC and CO. What figure do you obtain?
An: Square
8. All three sides of a triangle are produced in order to form three exterior angles. Prove that the sum of these exterior angles is 360° .
9. If $p(x) = x^2 - 4x + 3$, evaluate $p(2) - p(-1) + p\left(\frac{1}{2}\right)$
An: $-31/4$

10. In figure it is given that AB and CD are two parallel lines intersected by a transversal EF. Bisectors of interior angles $\angle BMN$ and $\angle DNM$ on the same side of the transversal meet at P. Prove that $\angle MPN = 90^\circ$.

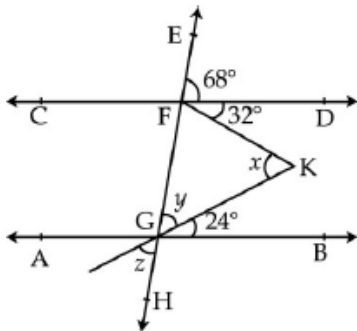


11. In figure, $EF \parallel DQ$ and $AB \parallel CD$. Find $\angle PDQ$, $\angle AED$ and $\angle DEF$.



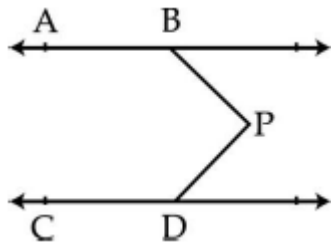
An: $\angle PDQ = 89^\circ$, $\angle AED = 27^\circ$, $\angle DEF = 89^\circ$

12. Prove that each angle of an equilateral triangle is 60° .
13. Prove that the bisectors of the angles of a linear pair are at right angles
14. In the given figure, $AB \parallel CD$. Find x , y and z .



An: 56° , 44° , 44°

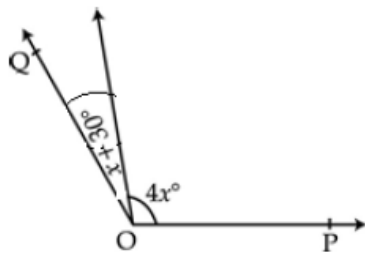
15. In the given figure $AB \parallel CD$ and P is any point. Prove that $\angle ABP + \angle BPD + \angle CDP = 360^\circ$.



16. Three vertices of a rectangle ABCD are $A(1, 3)$, $B(1, -1)$ and $C(7, -1)$. Plot these points on graph and find the co-ordinates of the fourth vertex. Also find area of rectangle.

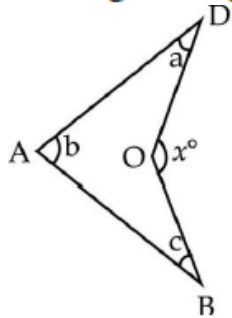
An : $(7, 3)$ & 24sq units

17. In the given figure find the value of x which makes $\angle POQ$ a straight angle



An : 30°

18. In the given figure prove that : $x = a + b + c$



19. Plot the points $A(0, 4)$, $B(-3, 0)$, $C(0, 0)$. Name the figure so obtained on joining them in order and also find its area.

An: Triangle, 6sq units

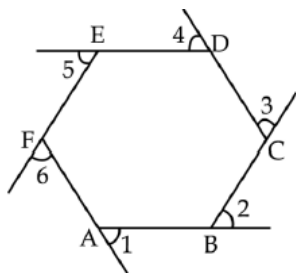
20. Prove that the sum of three angles of a triangle is 180° . Using this result find the value of x and all the three angles if the angles are $(2x - 7)^{\circ}$, $(x + 25)^{\circ}$ and $(3x + 12)^{\circ}$

An: 25°

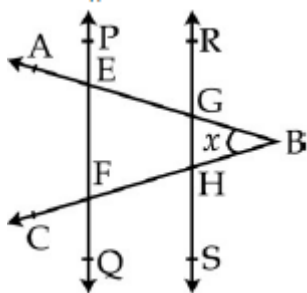
21. If $x = 2$ and $x = 0$ are the zeroes of the polynomial $f(x) = 2x^3 - 5x^2 + ax + b$, find the values of a and b .

An: $a = 2$, $b = 0$

22. In the given figure, sides of a regular hexagon are produced. Prove that $\angle 1 + \angle 2 + \angle 3 + \angle 4 + \angle 5 + \angle 6 = 360^{\circ}$



23. If $PQ \parallel RS$, $\angle AEF = 120^{\circ}$, $\angle BHS = 100^{\circ}$, then the value of x



An : 40°

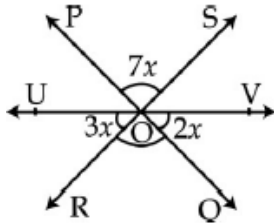
24. The perpendicular distance of the point $P(3, 4)$ from y -axis :

An: ____

25. If -1 is a zero of the polynomial. $p(x) = ax^3 - x^2 + x + 4$, find the value of a .

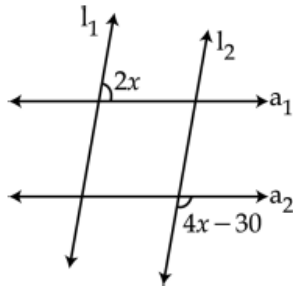
An : 2

26. In the given figure lines PQ, UV, RS intersect each other at O , find $\angle SOV$



An: 45°

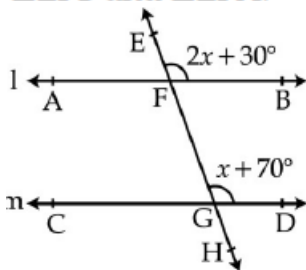
27. In the given figure if $l_1 \parallel l_2$, $a_1 \parallel a_2$ find the value of x .



An: 35°

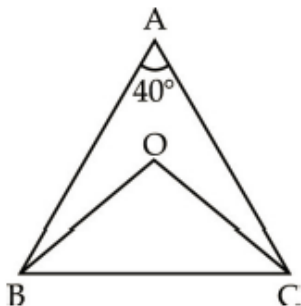
28. If two parallel lines are intersected by a transversal, prove that the bisectors of two interior alternate angles are parallel.

29. In the given figure, $l \parallel m$. $\angle EFB = 2x + 30^\circ$ and $\angle FGD = x + 70^\circ$. Find the angles $\angle EFB$ and $\angle EFA$.



An: $110^\circ, 70^\circ$

30. In $\triangle ABC$, $AB = AC$. Bisectors of $\angle B$ and $\angle C$ meet at O . If $\angle A = 40^\circ$, find the measure of $\angle BOC$.



An: 110°