SUCCESS INSTITUTE Assignment - 74 10^{th} Class Expert

Q1. Find the mid-point of the line segment joining the points :
(i) $(4, 3)$ and $(-2, 1)$ (ii) $(4, 7)$ and $(2, -3)$ *Ans.* (i) $(1, 2)$ (ii) $(3, 2)$

Q2. The mid-point of the line segment AB is $(4, 0)$. If the coordinates of A are $(3, -2)$, then find the coordinates of B.
Ans. $(5, 2)$

Q3. The mid-point of the line segment AB is $(1, 4)$. If the coordinates of A are $(3, 6)$, then find the coordinates of B.
Ans. $(-1, 2)$

Q4. If P$(x, 6)$ is the mid-point of the line segment joining the points A$(6, 5)$ and B$(4, y)$, then find the value of y.
Ans. $y = 7$

Q5. If P$(2, p)$ is the mid-point of the line segment joining the points A$(6, -5)$ and B$(-2, 11)$, then find the value of p.
Ans. $p = 3$

Q6. If P$\left(\frac{a}{2}, 4\right)$ is the mid-point of the line segment joining the points A$(-6, 5)$ and B$(-2, 3)$, then find the value of a.
Ans. $a = -8$

Q7. If the coordinates of one end of a diameter of a circle are $(2, 3)$ and the coordinates of the centre are $(-2, 5)$, then find the coordinates of the other end of the diameter. Ans. $(-6, 7)$

Q8. If the coordinates of one end of a diameter of a circle are $(4, -1)$ and the coordinates of the centre are $(1, -3)$, then find the coordinates of the other end of the diameter. Ans. $(-2, -5)$

Q9. Find the coordinates of A , where AB is diameter of a circle whose centre is $(2, -3)$ and B is $(1, 4)$. Ans. $(3, -10)$

Q10. The three vertices of a parallelogram are $(3, 4)$, $(3, 8)$ and $(9, 8)$. Find the fourth vertex. Ans. $(9, 4)$

Q11. The three vertices of a parallelogram are $(1, 2)$, $(4, 3)$ and $(6, 6)$. Find the fourth vertex. Ans. $(3, 5)$

Q12. The three vertices of a parallelogram are $(1, 3)$, $(-1, 2)$ and $(2, 5)$. Find the fourth vertex. Ans. $(4, 6)$

Q13. If A$(5, -1)$, B$(-3, -2)$ and C$(-1, 8)$ are the vertices of triangle ABC , find the length of the median through A.
Ans. $\sqrt{65}\ units$

Q14. If A$(1, 2)$, B$(5, 7)$ and C$(11, 13)$ are the vertices of triangle ABC , find the length of the median through A.
Ans. $\sqrt{113}\ units$

Q15. What are the coordinates of the centroid of the triangle whose vertices are :
(i) $(1, 4)$, $(-1, -1)$ and $(3, -2)$. (ii) $(-2, 3)$, $(2, -1)$ and $(4, 0)$. *Ans.* (i) $\left(1, \frac{1}{3}\right)$ (ii) $\left(\frac{4}{3}, \frac{2}{3}\right)$

Q16. The centroid of the triangle is $(6, 1)$. If two vertices of the triangle are $(3, 2)$ and $(11, 4)$. Find the third vertex.
Ans. $(4, -3)$

Q17. The centroid of the triangle is $(1, 3)$. If two vertices of the triangle are $(-7, 6)$ and $(8, 5)$. Find the third vertex.
Ans. $(2, -2)$

Q18. The centroid of the triangle is at origin. If two vertices of the triangle are $(1, 2)$ and $(3, 5)$. Find the third vertex.
Ans. $(-4, -7)$

Q19. The centroid of the triangle is at origin. If two vertices of the triangle are $(-3, 1)$ and $(0, -2)$. Find the third vertex.
Ans. $(3, 1)$

Q20. If the centroid of the triangle with vertices $(7, a)$, $(9, 10)$ and $(b, -6)$ *is* $(6, 3)$, what are the values of a and b ?
Ans. a = 5 , b = 2

Q21. If A$(0, 3)$, B$(-2, a)$ and C$(-1, 4)$ are the vertices of triangle ABC right angled at A. Find the value of a.
Ans. a = 1

Q22. If A$(5, 3)$, B$(11, -5)$ and C$(12, y)$ are the vertices of triangle ABC right angled at C. Find the value of y.
Ans. y = 2 or -4

Q23. Show that the points $(-3, -4)$, $(2, 6)$ and $(-6, 10)$ are the vertices of a right angled triangle.