10. The distance between the points and is

(a) (b)

(c) (d)

11. A point equidistant from the points (2, 0) and (0, 2) is
(a) (1, 4) (b) (2, 1)
(c) (1, 2) (d) (2, 2)

12. The point on y-axis equidistant from the points (3, 2) and (–1, 3) is
(a) (0, –3) (b) (0, –3/2)
(c) (0, 3/2) (d) (0, 3)

13. If a vertex of an equilateral triangle is on origin and second vertex is (4, 0), then its third vertex is

(a) (b)

(c) (d)

14. If the coordinates of vertices of are (0,0) and respectively, then
(a) 0 (b) 1
(c) 2 (d) 3

15. The length of altitude through A of the triangle ABC, where is **[Karnataka CET 2001]**

(a) (b)

(c) (d)

16. The distance of the point from origin is **[MP PET 1984]**

(a) (b)

(c) (d)

17. The distance of the middle point of the line joining the points and from the origin is **[MP PET 1999]**

(a) (b)

(c) (d)

18. If the points (1,1), (–1, –1) and are vertices of an equilateral triangle then the value of k will be
(a) 1 (b) –1
(c) (d)

19. The points P is equidistant from A(1,3), B (–3,5) and C(5,–1). Then PA = **[EAMCET 2003]**
(a) 5 (b)
(c) 25 (d)

20. The distance between the points (7, 5) and (3, 2) is equal to **[Pb. CET 2002]**
(a) 2 units (b) 3 units
(c) 4 units (d) 5 units

21. If the point dividing internally the line segment joining the points (a, b) and (5, 7) in the ratio 2 : 1 be (4, 6), then
(a) (b)
(c) (d)

22. If the middle point of the line segment joining the points (5, a) and (b,7) be (3,5), then (a, b) =
(a) (3,1) (b) (1,3)
(c) (–2,–2) (d) (–3, –1)

23. The ratio in which x-axis divides the join of the points (2, –3) and (5, 6) is
(a) 2 : 1 (b) 1: 2
(c) 2 : –1 (d) None of these

24. The point which divides externally the line joining the points and in the ratio , is

(a)

(b)

(c)

(d) None of these

25. The coordinates of the points A, B, C are , , and D divides the line AB in the ratio $l : k$. If P divides the line DC in the ratio $m : k + l$, then the coordinates of P are

(a)

(b)

(c)

(d) None of these

26. The points which trisect the line segment joining the points (0, 0) and (9, 12) are **[RPET 1986]**
(a) (3,4), (6,8) (b) (4,3), (6,8)
(c) (4,3), (8,6) (d) (3,4), (8,6)

27. The line divides the line joining the points (–1, 1) and (5, 7) in the ratio **[IIT 1965; UPSEAT 1999]**
(a) 2 : 1 (b) 1 : 2
(c) 1 : 2 externally (d) None of these

28. If the point $(x, – 1)$, $(3, y)$, (– 2,3) and (– 3, – 2) be the vertices of a parallelogram, then
(a) (b)
(c) (d) None of these

29. The mid-points of sides of a triangle are (2, 1), (–1, –3) and (4,5). Then the coordinates of its vertices are
(a) (b)

(c) (d) None of these

30. Point divides the line joining the points and in the ratio of

(a) 1 : 3 internally (b) 3 : 1internally
(c) 1 : 3 externally (d) 3 : 1externally

31. The coordinates of the join of trisection of the points (–2, 3), (3, –1) nearer to (–2, 3), is

(a) (b)

(c) (d)

32. If the vertices of a triangle are and then the length of the median passing through C is **[RPET 1995]**

(a) 1 (b) 2
(c) (d)

33. Three vertices of a parallelogram taken in order are , and . The fourth vertex is **[Kerala (Engg.) 2002]**

(a) (1, 4) (b) (4, 1)
(c) (1, 1) (d) (4, 4)

34. P and Q are points on the line joining A (–2, 5) and B (3, 1) such that $AP = PQ = QB$. Then the mid-point of PQ is

(a) (b)

(c) (d)

35. The points of trisection of the line segment joining the points (3, –2) and (–3, –4) are

(a) (b)

(c) (d) None of these

36. The coordinates of the point dividing internally the lines joining the points (4, –2) and (8, 6) in the ratio 7 : 5 will be **[AMU 1979; MP PET 1984]**

(a) (b)

(c) (d)

37. In what ratio does the y-axis divide the join of and **[RPET 1995]**

(a) 1 : 3 (b) 2 : 3
(c) 3 : 1 (d) None of these

38. If the three vertices of a rectangle taken in order are the points (2, –2), (8, 4) and (5, 7). The coordinates of the fourth vertex is **[CEE 1993]**

(a) (1, 1) (b) (1, –1)
(c) (–1, 1) (d) None of these

39. The line joining points (2, –3) and (–5,6) is divided by y-axis in the ratio **[MP PET 1999]**

(a) 2 : 5 (b) 2 : 3
(c) 3 : 5 (d) 1 : 2

40. If P (1,2), Q(4,6) R(5, 7) and $S(a, b)$ are the vertices of a parallelogram $PQRS$, then **[IIT 1998]**

(a) (b)

(c) (d)

41. The extremities of a diagonal of a parallelogram are the points and . If third vertex is , then fourth vertex is **[RPET 1987]**

(a) (b)

(c) (d) None of these

42. (0, –1) and (0, 3) are two opposite vertices of a square. The other two vertices are **[Karnataka CET 2005]**

(a) (0, 1), (0, –3) (b) (3, –1) (0, 0)
(c) (2, 1), (–2, 1) (d) (2, 2), (1, 1)

43. If are the vertices of a parallelogram, taken in the order, then the co-ordinates of the fourth vertex are **[Kerala (Engg.) 2005]**

(a) (10, 19) (b) (15, 10)
(c) (19, 10) (d) (19, 15)
(e) (15, 19)

44. If the point (a, a) are placed in between the lines , then **[AMU 2005]**

(a) $|a| = 2$ (b)

(c) $|a| < 2$ (d) $|a| < 3$

Questions related to geometrical conditions

1. The three points (–2,2), (8,–2) and (–4, –3) are the vertices of **[RPET 1987]**

(a) An isosceles triangle (b) An equilateral triangle
(c) A right angled triangle (d) None of these

2. The points are the vertices of

(a) An equilateral triangle (b) An isosceles triangle
(c) A right angled triangle (d) None of these

3. The points and are

(a) Vertices of an equilateral triangle
(b) Vertices of an isosceles triangle
(c) Vertices of a right angled triangle
(d) Collinear

4. The points (0, 8/3), (1, 3) and (82, 30) are the vertices of **[IIT 1983, RPET 1988]**

(a) An equilateral triangle (b) An isosceles triangle
(c) A right angled triangle (d) None of these

5. The points $(3a, 0)$, $(0, 3b)$ and $(a, 2b)$ are **[MP PET 1982]**

(a) Vertices of an equilateral triangle
(b) Vertices of an isosceles triangle
(c) Vertices of a right angled isosceles triangle
(d) Collinear

6. The points are
   (a) Vertices of an equilateral triangle
   (b) Vertices of a right angled triangle
   (c) Vertices of an isosceles triangle
   (d) Collinear
7. The quadrilateral formed by the vertices (–1,1), (0,–3), (5,2) and (4,6) will be **[RPET 1986]**
   (a) Square (b) Parallelogram
   (c) Rectangle (d) Rhombus
8. The points $A(-4,-1)$, $B(-2,-4)$, $C(4,0)$ and $D(2,3)$ are the vertices of **[Roorkee 1973]**
   (a) Parallelogram (b) Rectangle
   (c) Rhombus (d) None of these
9. If the vertices of triangle are (0,2), (1,0) and (3,1), then the triangle is
   (a) Equilateral (b) Isosceles
   (c) Right angled (d) Isosceles right angled
10. The points and are **[IIT 1979]**
    (a) Collinear (b) Vertices of a rectangle
    (c) Vertices of a parallelogram (d) None of these
11. The points and are vertices of
    (a) Isosceles triangle (b) Equilateral triangle
    (c) Scalene triangle (d) None of these
12. If vertices of a quadrilateral are $A(0,0)$, $B(3,4)$, $C(7,7)$ and $D(4,3)$ then quadrilateral $ABCD$ is **[RPET 1986]**
    (a) Parallelogram (b) Rectangle
    (c) Square (d) Rhombus
13. If vertices of any quadrilateral are (0, –1), (2,1), (0, 3) and (–2,1), then it is a **[RPET 1999]**
    (a) Parallelogram (b) Square
    (c) Rectangle (d) Collinear
14. A triangle with vertices (4, 0), (–1, –1), (3, 5) is **[AIEEE 2002]**
    (a) Isosceles and right angled
    (b) Isosceles but not right angled
    (c) Right angled but not isosceles
    (d) Neither right angled nor isosceles
15. The triangle joining the points $P(2, 7)$, $Q(4, -1)$, $R(-2, 6)$ is **[MP PET 1997]**
    (a) Equilateral triangle (b) Right-angled triangle
    (c) Isosceles triangle (d) Scalene triangle
16. Vertices of figure are (–2,2), (–2,–1), (3,–1), (3,2). It is a **[Karnataka CET 1998]**
    (a) Square (b) Rhombus
    (c) Rectangle (d) Parallelogram
17. If the points (1,1) (–1,–1) are the vertices of a triangle, then this triangle is **[MP PET 2004]**
    (a) Equilateral (b) Right-angled
    (c) Isosceles (d) None of these

Points related to triangle (Orthocente, Circumcentre, Incentre), Area of some geometrical figures, Collinearity

1. If the vertices of a triangle be and , then the centroid of the triangle lies
   (a) At origin (b) On x-axis
   (c) On y-axis (d) None of these
2. If the vertices of a triangle be and then the centroid of the triangle will lie on x-axis, if
   (a) (b)
   (c) (d)
3. Circumcentre of the triangle formed by the line and is
   (a) (6, 8) (b) (6, – 8)
   (c) (3, 4) (d) (– 3, – 4)
4. Two vertices of a triangle are (5,4) and (–2,4). If its centroid is (5,6) then the third vertex has the coordinates **[MP PET 1993]**
   (a) (12,10) (b) (10,12)
   (c) (–10, 12) (d) (12, –10)
5. If , and are the vertices of a triangle, then its centroid will be **[RPET 1984, 86]**
   (a) (–3,3) (b) (3,3)
   (c) (3,1) (d) (1,3)
6. All points lying inside the triangle formed by the points (1, 3), (5,0) and (–1,2) satisfy **[IIT 1986; Kurukshetra CEE 1998]**
   (a) (b)
   (c) (d) All the above
7. The centroid of a triangle, whose vertices are (2,1), (5,2) and (3,4), is **[IIT 1964]**
   (a) (b)
   (c) (d)
8. The incentre of the triangle formed by (0, 0), (5,12), (16, 12) is **[EAMCET 1984]**
   (a) (7,9) (b) (9,7)
   (c) (–9, 7) (d) (–7,9)
9. The equations of the sides of a triangle are and then the coordinates of the circumcentre are **[MP PET 1996]**
   (a) (2,1) (b) (1,2)
   (c) (2,–2) (d) (1, –2)
10. If two vertices of a triangle are (6,4), (2,6) and its centroid is (4, 6), then the third vertex is **[RPET 1996]**
    (a) (4,8) (b) (8,4)
    (c) (6,4) (d) None of these
11. The incentre of the triangle with vertices , (0, 0) and (2, 0) is **[IIT Screening 2000]**

(a) (b)

(c) (d)

12. If and are the vertices of a triangle, then the excentre with respect to B is **[RPET 2000]**

(a)

(b)

(c)

(d) None of these

13. Orthocentre of the triangle formed by the lines and is **[Orissa JEE 2004]**

(a) (0,0) (b) (0,1)
(c) (1,0) (d) (–1,1)

14. If the vertices of a triangle be and then the area of the triangle is

(a)

(b)

(c)

(d) None of these

15. If the coordinates of the points A, B, C, be (4,4), (3,–2) and (3,–16) respectively, then the area of the triangle ABC is **[MP PET 1982]**

(a) 27 (b) 15
(c) 18 (d) 7

16. The area of the triangle formed by the points is **[IIT 1963; EAMCET 1982; RPET 2003]**

(a) (b)
(c) (d) 0

17. The area of the triangle formed by the lines and is **[IIT 1977]**

(a) 8 *sq. unit* (b) 12 *sq. unit*
(c) 14 *sq. unit* (d) None of these

18. If , then the two triangle with vertices and must be **[IIT 1985]**

(a) Similar (b) Congruent
(c) Never congruent (d) None of these

19. The area of the triangle formed by the lines and is

(a) (b)

(c) (d)

20. The area of a triangle whose vertices are (1, –1), (–1, 1) and (–1, –1) is given by **[AMU 1981; RPET 1989; MP PET 1993; Pb. CET 2001]**

(a) (b)

(c) 1 (d) 3

21. Three points are and $P(x, y)$ is a point, then the ratio of area of PBC and ABC is **[IIT 1983]**

(a) (b)

(c) (d) None of these

22. If , and are four points. If the ratio of area of and is 1 : 2, then the value of x, will be **[IIT 1959]**

(a) (b)

(c) (d) None of these

23. Area of a triangle whose vertices are and is

(a) (b)

(c) (d)

24. The area of the triangle enclosed by the straight lines and in *sq. unit* is

(a) (b)

(c) (d) None of these

25. The area of the triangle with vertices at is **[EAMCET 1980]**

(a) 14 (b) 16
(c) 15 (d) None of these

26. are the vertices of triangle and if through P and R lines parallel to opposite sides are drawn to intersect in S, then the area of $PQRS$ is

(a) 6 (b) 4
(c) 8 (d) 12

27. The vertices of the triangle ABC are (2,1), (4,3) and (2,5). are the mid-points of the sides. The area of the triangle DEF is
(a) 1 (b) 1.5
(c) 3 (d) 4

28. If the vertices of a triangle are and , then the area of the triangle is **[Kurukshetra CEE 2002]**
(a) 28/6 (b) 5/2
(c) (d) 13/6

29. If the area of the triangle with vertices and is 4 square units then a value of x is **[Karnataka CET 2004]**
(a) – 2 (b) – 4
(c) – 6 (d) 8

30. Three points ,) and are collinear, if p = **[MP PET 1986]**
(a) – 1 (b) 1
(c) 2 (d) 0

31. If the points be collinear and , then =
(a) (b)
(c) (d)

32. If the points , and be collinear, then the possible values of k are **[AMU 1978; RPET 1997]**
(a) (b)
(c) (d)

33. If the points and are collinear, then **[RPET 1999]**
(a) (b)
(c) (d)

34. If the points and (1, 1) are collinear, then
(a) (b)
(c) (d)

35. If the points and are collinear, then the value of p will be **[MP PET 1984]**
(a) 5 (b) 3
(c) 4 (d) 7

36. If points (5, 5), (10, k) and (–5, 1) are collinear, then k = **[MP PET 1994, 99; RPET 2003]**
(a) 3 (b) 5
(c) 7 (d) 9

37. If the points (–2,–5), (2,–2), (8,a) are collinear, then the value of a is **[MP PET 2002]**
(a) (b)
(c) (d)

38. If the points are collinear, then x is **[RPET 2002]**
(a) 4 (b) 0
(c) –4 (d) None of these

39. If a vertex of a triangle is (1, 1) and the mid points of two sides through this vertex are (–1, 2) and (3, 2), then the centroid of the triangle is **[AIEEE 2005]**
(a) (b)
(c) (d)

40. The incentre of a triangle with vertices (7, 1) (–1, 5) and is **[J & K 2005]**
(a) (b)
(c) (7, 1) (d) None of these

41. The orthocentre of the triangle with vertices (–2, –6), (–2, 4) and (1, 3) is **[J & K 2005]**
(a) (–3, 1) (b) (–1,1/3)
(c) (1, 3) (d) None of these

42. Orthocentre of the triangle whose vertices are (0, 0) (3, 0) and (0, 4) is **[MNR 1982; RPET 1997]**
(a) (0, 0) (b) (1, 1)
(c) (2, 2) (d) (3, 3)

43. If the points are collinear, then the values of k are **[Kerala(Engg.) 2005]**
(a) 2, 3 (b) 1, 0
(c) 1, 2 (d) 1, –1/2
(e) 0, 3

44. The circumcentre of a triangle formed by the line and is **[Orissa JEE 2005]**
(a) (–1, –1) (b) (0, –1)
(c) (1, 1) (d) (–1, 0)

45. If equation of three sides of a triangle are and then co-ordinates of circumcentre of this triangle are **[AMU 2005]**
(a) (4, 0) (b) (2, –1)
(c) (0, 4) (d) (–1, 2)

46. The orthocentre of the triangle formed by (0, 0), (8, 0), (4 6) is **[EAMCET 1991]**
(a) (b) (3, 4)
(c) (4, 3) (d) (–3, 4)

47. The incentre of triangle formed by the lines and is **[RPET 1990]**

(a) (b) (1, 1)

(c) (d)

48. Orthorcentre of triangle with vertices (0, 0), (3, 4) and (4, 0) is **[IIT Screening 2003]**

(a) (b) (3, 12)

(c) (d) (3, 9)

49. The orthocentre of triangle formed by lines and is **[IIT 1969, 76]**

(a) (1, 2) (b) (1, –2)
(c) (–1, –2) (d) (–1, 2)

50. Coordinates of the orthocentre of the triangle whose sides are and is **[MNR 1989]**

(a) (0, 0) (b) (3, 0)
(c) (0, 4) (d) (3, 4)

51. The orthocentre of the triangle formed by the lines and lies in quadrant **[IIT 1985]**

(a) First (b) Second
(c) Third (d) Fourth

52. The vertices of a triangle are , , then the coordinates of its orthocentre are **[IIT 1983]**

(a) (b)

(c) (d) None of these

53. Two vertices of a triangle are (4, –3) and (–2, 5). If the orthocentre of the triangle is at (1, 2), then the third vertex is **[Roorkee 1987]**

(a) (– 33, – 26) (b) (33, 26)
(c) (26, 33) (d) None of these

54. The orthocentre of the triangle with vertices , and is **[IIT 1993]**

(a) (b)

(c) (d)

55. Orthocentre of the triangle whose vertices are (0, 0) (2, –1) and (1, 3) is **[ISM Dhanbad1970; IIT 1967, 74]**

(a) (b)

(c) (–4, –1) (d) (4, 1)

56. The area of triangle formed by the points is equal to **[Pb. CET 2003]**

(a) (b)
(c) (d) 0

Transformation of axes and Locus

1. The new coordinates of a point (4, 5), when the origin is shifted to the point (1,–2) are **[MNR 1988; IIT 1989; UPSEAT 2000]**

(a) (5, 3) (b) (3, 5)
(c) (3, 7) (d) None of these

2. Without changing the direction of coordinate axes, origin is transferred to , so that the linear (one degree) terms in the equation =0 are eliminated. Then the point is

(a) (3, 2) (b) (– 3, 2)
(c) (2, – 3) (d) None of these

3. The equation of the locus of a point whose distance from $(a, 0)$ is equal to its distance from y-axis, is **[MP PET 1986]**

(a) (b)

(c) (d)

4. Two points A and B have coordinates (1, 0) and (–1, 0) respectively and Q is a point which satisfies the relation The locus of Q is **[MP PET 1986]**

(a) (b)

(c) (d)

5. The locus of a point P which moves in such a way that the segment OP, where O is the origin, has slope is

(a) (b)

(c) (d)

6. If the coordinates of a point be given by the equation , then the locus of the point will be

(a) A straight line (b) A circle
(c) A parabola (d) An ellipse

7. If P = (1,0), Q =(–1,0) and R =(2,0) are three given points, then the locus of a point S satisfying the relation is **[IIT 1988]**

(a) A straight line parallel to x-axis
(b) A circle through origin
(c) A circle with centre at the origin
(d) A straight line parallel to y-axis

8. The coordinates of the points O, A and B are (0,0), (0,4) and (6,0) respectively. If a points P moves such that the area of is always twice the area of , then the equation to both parts of the locus of P is **[IIT 1964]**

(a) (b)

(c) (d) None of these

9. A point moves in such a way that the sum of square of its distance from the points and is always equal to

the square of the distance between A and B. The locus of the point is

(a) (b)

(c) (d)

10. A point P moves so that its distance from the point is always equal to its distance from the line . The locus of the point is **[MP PET 1982]**

(a) (b)

(c) (d)

11. The equation to the locus of a point which moves so that its distance from x-axis is always one half its distance from the origin, is

(a) (b)

(c) (d)

12. A point moves so that its distance from the point $(-1,0)$ is always three times its distance from the point $(0,2)$. The locus of the point is

(a) A line (b) A circle

(c) A parabola (d) An ellipse

13. The locus of a point which moves so that its distance from x-axis is double of its distance from y-axis is **[AMU 1978; MP PET 1984]**

(a) (b)

(c) (d)

14. O is the origin and A is the point $(3,4)$. If a point P moves so that the line segment OP is always parallel to the line segment OA, then the equation to the locus of P is

(a) (b)

(c) (d)

15. The locus of a point which moves so that it is always equidistant from the point $A(a, 0)$ and $B(-a, 0)$ is **[MP PET 1984]**

(a) A circle

(b) Perpendicular bisector of the line segment AB

(c) A line parallel to x-axis

(d) None of these

16. The coordinates of the points A and B are $(a, 0)$ and respectively. If a point P moves so that , when k is constant, then the equation to the locus of the point P, is

(a) (b)

(c) (d)

17. If the coordinates of a point be given by the equations , then its locus is

(a) A straight line (b) A circle

(c) An ellipse (d) A hyperbola

18. The coordinates of the point A and B are and . If a point P moves so that then the equation to the locus of P is

(a) (b)

(c) (d)

19. The locus of a point which moves in such a way that its distance from $(0,0)$ is three times its distance from the x-axis, as given by **[MP PET 1993]**

(a) (b)

(c) (d)

20. The equation of the locus of all points equidistant from the point $(4,2)$ and the x-axis, is **[CEE 1993]**

(a) (b)

(c) (d) None of these

21. The locus of the mid-point of the distance between the axes of the variable line where p is constant, is **[MNR 1985; CEE 1993; UPSEAT 2000; AIEEE 2002]**

(a) (b)

(c) (d)

22. The locus of a point whose distance from the point is always 'a', will be, (where)

(a)

(b)

(c)

(d) None of these

23. The locus of the moving point P, such that $2PA = 3PB$ where A is $(0,0)$ and B is $(4,-3)$, is **[AMU 1980]**

(a)

(b)

(c)

(d)

24. A point moves such that the sum of its distances from two fixed points $(ae,0)$ and $(-ae,0)$ is always $2a$. Then equation of its locus is **[MNR 1981]**

(a) (b)

(c) (d) None of these

25. A point moves in such a way that its distance from $(1,-2)$ is always the twice from $(-3,5)$, the locus of the point is

(a)

(b)

(c)

(d) None of these

26. A point moves in such a way that its distance from origin is always 4. Then the locus of the point is

(a) (b)

(c) (d) None of these

27. If and are two fixed points, then the locus of the point on which the line AB subtends the right angle, is

(a) (b)

(c) (d)

28. If A and B are two fixed points and P is a variable point such that , then the locus of P is a/an

[IIT 1989; MNR 1991; UPSEAT 2000]

(a) Parabola (b) Ellipse

(c) Hyperbola (d) None of these

29. If A and B are two points in a plane, so that = constant, then the locus of P is **[MNR 1991, 95]**

(a) Hyperbola (b) Circle

(c) Parabola (d) Ellipse

30. If A and B are two fixed points in a plane and P is another variable point such that constant, then the locus of the point P is **[MNR 1991]**

(a) Hyperbola (b) Circle

(c) Parabola (d) Ellipse

31. The locus of P such that area of units, where and is **[EAMCET 1989]**

(a)

(b)

(c)

(d)

32. The position of a moving point in the XY-plane at time t is given by where are constants.

The locus of the moving point is

(a) A circle (b) A parabola

(c) An ellipse (d) None of these

33. If are the vertices of a , then as varies, the locus of its centroid is

(a)

(b)

(c)

(d) None of these

34. If the equation of the locus of a point equidistant from the points and is , then the value of c is

(a) (b)

(c) (d)

35. If sum of distances of a point from the origin and lines is 4, then its locus is **[RPET 1997]**

(a) (b)

(c) (d)

36. The locus of a point whose difference of distance from points (3, 0) and (–3,0) is 4, is **[MP PET 2002]**

(a)

(b)

(c)

(d)

37. Locus of centroid of the triangle whose vertices are and (1, 0), where t is a parameter; is **[AIEEE 2003]**

(a)

(b)

(c)

(d)

38. If the distance of any point P from the point and are equal, then the locus of P is

[Karnataka CET 2003]

(a) (b)

(c) (d)

39. What is the equation of the locus of a point which moves such that 4 times its distance from the x-axis is the square of its distance from the origin **[Karnataka CET 2004]**

(a) (b)

(c) (d)

40. Let P be the point (1, 0) and Q a point of the locus . The locus of mid point of PQ is **[AIEEE 2005]**

(a) (b)

(c) (d)

1. Point of intersection of the diagonals of square is at origin and coordinate axis are drawn along the diagonals. If the side is of length a, then one which is not the vertex of square is

(a) (b)

(c) (d)

2. ABC is an isosceles triangle. If the coordinates of the base are B (1,3) and C (– 2, 7), the coordinates of vertex A can be **[Orrissa JEE 2002; Pb. CET 2002]**

(a) (1, 6) (b)

(c) (d) None of these

3. If and , then $2a$ is equal to **[RPET 2000]**

(a) A.M. of CA and CB (b) G.M. of CA and CB

(c) H.M. of CA and CB (d) None of these

4. If coordinates of the points A and B are (2, 4) and (4, 2) respectively and point M is such that $A–M–B$ also $AB = 3\ AM$, then the coordinates of M are

(a) (b)

(c) (d)

5. The point of trisection of the line joining the points (0, 3) and (6, –3) are

(a) and (b) and

(c) and (d) and

6. The following points A $(2a, 4a)$, $B(2a, 6a)$ and C , are the vertices of

(a) An acute angled triangle (b) A right angled triangle

(c) An isosceles triangle (d) None of these

7. If the coordinates of the vertices of a triangle be $(1,a)$, $(2,b)$ and , then the centroid of the triangle

(a) Lies at the origin (b) Cannot lie on x-axis

(c) Cannot lie on y-axis (d) None of these

8. If the vertices of a triangle be (0,0), (6,0) and (6,8), then its incentre will be

(a) (2,1) (b) (1,2)

(c) (4,2) (d) (2,4)

9. If the middle points of the sides of a triangle be (–2, 3), (4, –3) and (4, 5), then the centroid of the triangle is

(a) (5/3, 2) (b) (5/6, 1)

(c) (2, 5/3) (d) (1, 5/6)

10. If the vertices P, Q, R of a triangle PQR are rational points, which of the following points of the triangle PQR is (are) always rational point(s) **[IIT 1998]**

(a) Centroid (b) Incentre

(c) Circumcentre (d) Orthocentre

(A rational point is a point both of whose coordinates are rational numbers)

11. The centroid of a triangle is (2, 7) and two of its vertices are (4, 8) and (–2, 6). The third vertex is **[Kerala (Engg.) 2002]**

(a) (0,0) (b) (4,7)

(c) (7,4) (d) (7,7)

12. The points , are collinear for **[Roorkee 1963]**

(a) (b)

(c) (d) None of these

13. The ends of a rod of length l move on two mutually perpendicular lines. The locus of the point on the rod which divides it in the ratio 1 : 2 is **[IIT 1987; RPET 1997]**

(a) (b)

(c) (d) None of these

14. Two fixed points are and . If , then the locus of point C of triangle ABC will be **[Roorkee 1982]**

(a) (b)

(c) (d)

15. Let and be vertices of a triangle ABC. If the centroid of this triangle moves on the line , then the locus of the vertex C is the line **[AIEEE 2004]**

(a) (b)

(c) (d)