# MATHS

## Rectangular Cartesian System Worksheet for MAH MCA CET 2025

For students preparing for MCA Entrance Exam.

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1. If the point (-2, -5), (2, -2) and (8, a) are collinear then the value of a is
    A. $-\frac{5}{2}$
    B. $\frac{5}{2}$
    C. $\frac{3}{2}$
    D. $\frac{1}{2}$

2. If the point (1,1), (-1, -1) and $(-\sqrt{3}, \sqrt{3},)$ are the vertices of a triangle, then this triangle is
    A. Right angled
    B. Isosceles
    C. Equilateral
    D. None of these

3. The point (1,1), (-5, -5) and (13, λ) lie on a straight line, if λ is equal to
    A. 7
    B. -7
    C. ±7
    D. 0

4. If A (3,5), B (-5, -4) and c (7,10) are the vertices of a parallelogram taken in the order, then the co-ordinates of the fourth vertex are
    A. (10,19)
    B. (15,10)
    C. (15,19)
    D. (19,15)

5. What is the set of points (x, y) satisfying the equations $x^2 + y^2 = 4$ $and$ $x + y = 2$ ?
    A. {(2,0), (-2,0), (0,2)}
    B. {(0,2), (0, -2)}
    C. {(0,2), (2,0)}
    D. {(2,0), (-2,0), (0,2), (0, -2)}

6. If the point (x, y), (1,2) and (-3,4) are collinear, then
    A. x + 2y -5 = 0
    B. x + y – 1 = 0
    C. 2x + y – 4 = 0
    D. 2x – y + 10 = 0

7. If the area of triangle with vertices (-3, 0), (3,0) and (0, k) is 9 sq. unit, then what is the value of k?
    A. 3
    B. 6
    C. 9
    D. 12

8. After subtending an angle of 1000° from its initial position, the revolving line will be situated in which one of the following quadrants?
    A. First quadrant
    B. Second quadrant
    C. Third quadrant
    D. Fourth quadrant

9. The cartesian form of the polar equation $\theta = \tan^{-1} 2$ is
    A. x = 2y
    B. y = 2x
    C. x = 4y
    D. y = 4x

10. What does the equation $x^3 y + xy^3 - xy = 0$ represent?
    A. A pair of straight lines only

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B. A pair of straight lines and a circle
C. A rectangular hyperbola only
D. A rectangular hyperbola and a circle

11. The co-ordinates of a point are (0,1) and the ordinate of another point is (-3). If the distance between the two points is 5. Then the abscissa of another point is
    A. 3
    B. -3
    C. $\pm 3$
    D. 1

12. The area (in sq. unit) of a triangle formed by the lines $x = 0$, $y = 0$ and $3x + 4y = 12$ is
    A. 3 sq. units
    B. 4 sq. units
    C. 6 sq. units
    D. 12 sq. units

13. If P (1,2), Q (4,6), R (5,7) and S (a, b) are the vertices of a parallelogram PQRS, then
    A. $a = 2, b = 3$
    B. $a = 3, b = 4$
    C. $a = 2, b = 4$
    D. $a = 3, b = 5$

14. The x – co-ordinates of the incentre of the triangle, where the mid-point of the sides are (0,1), (1,1) and (1,0), is
    A. $2 + \sqrt{2}$
    B. $1 + \sqrt{2}$
    C. $2 - \sqrt{2}$
    D. $1 - \sqrt{2}$

15. A point P moves, such that, the difference of its distance from two given point (c,0) and (-c,0) is constant. What is the locus point P?
    A. Circle
    B. Ellipse
    C. Hyperbola
    D. Parabola

16. if the point (x+1,2), (1, x+2) and $\left(\frac{1}{x+1}, \frac{2}{x+1}\right)$ are collinear, then x is
    A. 4
    B. 5
    C. -4

D. None of these

17. ABC is a triangle with vertices A (-1,4), B (6, -2) and C (-2,4). D, E and F are the point, which divide each AB, BC and CA, respectively in the ratio 3:1 internally. Then, the centroid of the triangle DEF is
    A. (3,6)
    B. (1,2)
    C. (4,8)
    D. (-3,6)

## Answer Key

| 1. B | 2. C | 3. B | 4. C | 5. C | 6. A | 7. A | 8. D | 9. B | 10. B |
|------|------|------|------|------|------|------|------|------|-------|
| 11. C | 12. C | 13. A | 14. C | 15. C | 16. C | 17. B | | | |