

Coordinate Plane Test
(Theta)

- Find an equation of the line through the points (0, 2) and (-1,0).
A: $x + y = 11$ B: $2x - y = -2$ C: $x - y = -1$
D: $x - y = -2$ E: None of these
- Find the point of intersection of $y = 2x + 2$ and $y = -x + 11$.
A: (9, 20) B: (3, 8) C: (0, 11)
D: (8, 3) E: None of these
- Find the midpoint of the line segment AB if A: (-3, 9) and B: (11,-5).
A: (8, 4) B: (7,-7) C: (3, 3)
D: (4, 2) E: None of these
- AB is the diameter of a circle with center (2, 0).
If A: (0,-2), find point B.
A: (0, 2) B: (6, 0) C: (3, 1)
D: (4, 2) E: None of these
- Which point lies farthest from the origin?
A: (0,-9) B: (-7, 6) C: (-9, 0)
D: (-2, 9) E: (8, 5)
- Find the length of the longest side of the triangle with vertices A: (1, 1) B: (9, 7) and C: (9,16)
A: 15 B: 17 C: 23
D: 289 E: None of these
- The equation $3x + 2y = -5$ has no points in Quadrant
A: I B: II C: III
D: IV
- Find the slope of a line that is perpendicular to the line through the points (6,-9) and (-2,-2).
A: $\frac{7}{8}$ B: $-\frac{7}{8}$ C: $\frac{8}{7}$
D: $-\frac{8}{7}$ E: None of these
- Solve for x: $2x + y - z = 0$
 $x - y + z = 6$
 $x + 2y + z = 3$
A: -1 B: 2 C: 3
D: 5 E: None of these
- Find the center of the circle with equation: $x^2 + y^2 + 4x - 10y + 25=0$
A: (-2, 5) B: (2, 5) C: (2,-5)
D: (-2,-5) E: None of these

11. Find the vertex of the parabola with equation: $y = 4x^2 - 8x + 3$.
 A: (1,-1) B: (-1,15) C: (2, 3)
 D: (3,15) E: None of these
12. The graph of the equation $16x^2 + 4y^2 = 64$ is
 A: a circle B: a parabola C: an ellipse
 D: a hyperbola E: None of these
13. Find the focal points of the hyperbola with equation:
 $16y^2 - 9x^2 = 144$.
 A: (± 3 , 0) B: (0, ± 3) C: (± 5 , 0)
 D: (0, ± 5) E: None of these
14. How many solutions does the following system of equations have?
 $2x^2 - y^2 = -1$ and $x^2 + 2y^2 = 22$
 A: 0 B: 1 C: 2
 D: 3 E: 4
15. Find the value of c such that the point $(\frac{1}{2}, \frac{-3}{2})$ is on the
 graph of $y = 2x^2 - 3x + c$.
 A: 0 B: $\frac{19}{2}$ C: -2
 D: $\frac{-1}{2}$ E: None of these
16. Which equation is not that of a hyperbola?
 A: $\frac{x^2}{2} - \frac{y^2}{6} = 1$ B: $xy = -8$ C: $3y^2 - 9x^2 = 9$
 D: $x^2 = y^2 + 1$ E: $2x^2 = 6 - 3y^2$
17. What is the domain of the parabola $x = y^2 + 6y + 9$?
 A: $x \in \mathbb{R}$ B: $x \in \mathbb{R} : x \geq 0$ C: $x \in \mathbb{R} : x \geq -3$
 D: $x \in \mathbb{R} : x > 9$ E: None of these
18. Determine k so that the graph of $kx + jy = 6$ will pass
 through (6, 9) and (-2,-5).
 A: -4 B: -2 C: 2
 D: 7 E: None of these
19. Determine the value of k if the point (5,-5) lies on the
 line with equation $(2 + k)x + (2 - k)y = 15$.
 A: $\frac{-1}{2}$ B: $\frac{3}{2}$ C: $\frac{7}{2}$
 D: 2 E: None of these

20. A square is inscribed in a circle with center (3, 3) and radius 6. Find the approximate difference of the perimeter of the circle and the perimeter of the square.
 A: 1.728 B: 1.884 C: 10.278
 D: 14.610 E: None of these
21. Find the ratio of the area of $|x| + |y| \leq 3$ to the area of $x^2 + y^2 \leq 9$.
 A: $\frac{1}{3}$ B: $\frac{1}{\pi}$ C: $\frac{\pi}{4}$
 D: $\frac{9\pi}{1}$ E: None of these
22. If $x^2 + y^2 = 36$ and $xy = 6$, find the value of $(x + y)^2$.
 A: 24 B: 30 C: 36
 D: 42 E: 48
23. Find the approximate distance between the center of the circle $x^2 + y^2 - 6x + 8y = 0$ and the vertex of the parabola $y = -1x^2 + 10x - 17$.
 A: 4.472 B: 12.166 C: 14.422
 D: 33.060 E: None of these
24. The set of all points that are twice as far from the line $x = 1$ as from the point (0, 1) determines the graph of:
 A: an ellipse B: a hyperbola C: a parabola
 D: a circle E: None of these
25. Triangle ABC has vertices A: (0, 0) B: (6, 0) and C: (4, 8). Find the point that the three altitudes have in common.
 (___ , ___)
26. Find the equation of a hyperbola with focal points (2, 5) and (6, 5) and difference of focal radii equal to 2.

$$\frac{(x - \underline{\quad})^2}{(\underline{\quad})^2} - \frac{(y - \underline{\quad})^2}{(\underline{\quad})^2} = 1$$

REPEATED

Find the equation of the circle through the points of intersection of the circles $x^2 + y^2 - 16x - 6y + 37 = 0$ and $x^2 + y^2 - 2x + 8y - 33 = 0$ and through (-3, 5).