Classroom Voting Questions: Precalculus

The Coordinate Plane

1. Find the coordinates of the point which is 3 units below the x-axis and 4 units to the right of the y-axis.

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

2. In which quadrant is $x < 0$ and $y < 0$?

   (a) I
   (b) II
   (c) III
   (d) IV

3. Find the distance between (2, −5) and (6, −2).

   (a) 25
   (b) 5
   (c) $\sqrt{113}$
   (d) $\sqrt{23}$

4. Based upon the distances between each pair of points, we can conclude that the points (−5, 6), (0, 8), and (−3, 1) form the vertices of what kind of triangle?

   (a) Equilateral
   (b) Isosceles
   (c) Right
   (d) Both (b) and (c)
5. The endpoints of a line segment are (1, −5) and (−7, 4). What are the coordinates of the midpoint?
   (a) (−6, −1)  
   (b) (0.4, 4.5)  
   (c) (8, −9)  
   (d) (−3, −5)

6. There is at least one point in the coordinate plane with $x$-coordinate $−2$ which is at most 5 units from the point (2, 3).
   (a) True, and I am very confident.  
   (b) True, but I am not very confident.  
   (c) False, but I am not very confident.  
   (d) False, and I am very confident.

7. There is at least one point in the coordinate plane with $x$-coordinate $−2$ and $y$-coordinate greater than 4 which is at most 5 units from the point (2, 3).
   (a) True, and I am very confident.  
   (b) True, but I am not very confident.  
   (c) False, but I am not very confident.  
   (d) False, and I am very confident.

8. Under what conditions will the distance from the point (2, 3) to the point (−2, $y$) be greater than 5 units?
   (a) $y > 6$  
   (b) $y < 1$  
   (c) $0 < y < 5$  
   (d) None of the above.

9. Name the center and radius of the circle whose equation is $(x + 2)^2 + y^2 = 100$.
   (a) Center = (2, 0), radius = 10  
   (b) Center = (−2, 0), radius = 100  
   (c) Center = (0, 2), radius = 100
(d) Center = (−2, 0), radius = 10

10. Find the center and radius of the circle given by the equation \( x^2 + y^2 − 10x + 6y = 3 \).

(a) Center: (−5, 3); radius: 37
(b) Center: (5, −3); radius: 37
(c) Center: (−5, 3); radius: \( \sqrt{37} \)
(d) Center: (5, −3); radius: \( \sqrt{37} \)

11. The point (4, −1) is on the circle with center (1, 2) and radius 5.

(a) True, and I am very confident.
(b) True, but I am not very confident.
(c) False, but I am not very confident.
(d) False, and I am very confident.

12. The point (−8, −3) is on the graph of the equation \((x + 8)^2 + (y + 1)^2 = 4\).

(a) True, and I am very confident.
(b) True, but I am not very confident.
(c) False, but I am not very confident.
(d) False, and I am very confident.

13. A diameter of a circle has endpoints (4, −3) and (−2, 5). What is the equation of this circle?

(a) \((x − 1)^2 + (y − 1)^2 = 10\)
(b) \((x − 1)^2 + (y − 1)^2 = 25\)
(c) \((x + 1)^2 + (y + 1)^2 = 100\)
(d) \((x − 3)^2 + (y + 1)^2 = 10\)

14. The point (1, 4) is inside of the graph of the circle described by the equation \((x − 3)^2 + (y + 1)^2 = 26\).

(a) True, and I am very confident.
(b) True, but I am not very confident.
(c) False, but I am not very confident.
(d) False, and I am very confident.

15. Find the equation for the lower half of the circle whose equation is $x^2 + y^2 = 9$.

(a) $y = \sqrt{9 - x^2}$
(b) $y = -\sqrt{9 - x^2}$
(c) $x = \sqrt{9 - y^2}$
(d) $x = -\sqrt{9 - y^2}$