5 Lecture - MTH101

Important Mcqs

- 1. What is the distance between points (3, 4) and (-2, 1)?
 - A. 3
 - B. 5
 - C. 7
 - D. 9

Solution: B. Using the distance formula, the distance between the two points is $d = sqrt((-2 - 3)^2 + (1 - 4)^2) = sqrt(25 + 9) = sqrt(34) ? 5.83 units.$

- 2. What is the center and radius of the circle with equation $(x + 2)^2 + (y 5)^2 = 16$?
 - A. Center: (-2, 5); Radius: 16
 - B. Center: (-2, 5); Radius: 4
 - C. Center: (2, -5); Radius: 4
 - D. Center: (2, -5); Radius: 16

Solution: A. The center of the circle is (-2, 5), and the radius is the square root of 16, which is 4.

- 3. What is the discriminant of the quadratic equation $2x^2 + 3x 5 = 0$?
 - A. -31
 - B. -11
 - C. 11
 - D. 31

Solution: D. The discriminant is $b^2 - 4ac = 3^2 - 4(2)(-5) = 31$, which is positive. Therefore, the equation has two real solutions.

- 4. What is the distance between points (-1, 2) and (3, -4)?
 - A. 5
 - B. 6
 - C. 7
 - D. 8

Solution: B. Using the distance formula, the distance between the two points is $d = sqrt((3 - (-1))^2 + (-4 - 2)^2) = sqrt(16 + 36) = sqrt(52) ? 7.21 units.$

- 5. What is the equation of the circle with center (-3, 4) and radius 6?
 - A. $(x + 3)^2 + (y 4)^2 = 6$
 - B. $(x 3)^2 + (y + 4)^2 = 36$
 - C. $(x + 3)^2 + (y 4)^2 = 36$
 - D. $(x 3)^2 + (y + 4)^2 = 6$

Solution: C. The equation of a circle with center (h, k) and radius r is $(x - h)^2 + (y - k)^2 = r^2$. Therefore, the equation of the circle with center (-3, 4) and radius 6 is $(x + 3)^2 + (y - 4)^2 = 36$.

6. What are the solutions of the quadratic equation $x^2 - 5x + 6 = 0$?

A.
$$x = 2$$
, $x = 3$

B.
$$x = 2$$
, $x = 4$

C.
$$x = 3$$
, $x = 4$

D.
$$x = 4$$
, $x = 5$

Solution: A. Factoring the quadratic equation gives (x - 2)(x - 3) = 0, so the solutions are x = 2 and x = 3.

7. What is the center and radius of the circle with equation $x^2 + y^2 - 6x + 8y - 19 = 0$?

A. Center: (3, -4); Radius: 5

B. Center: (-3, 4);