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);