

# 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  $d = \sqrt{(-2 - 3)^2 + (1 - 4)^2} = \sqrt{25 + 9} = \sqrt{34} \approx 5.83$  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  $d = \sqrt{(3 - (-1))^2 + (-4 - 2)^2} = \sqrt{16 + 36} = \sqrt{52} \approx 7.21$  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:  $(-3, 4)$ ;