## 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 $\mathbf{d}=\operatorname{sqrt}((-2-$ $\left.3)^{\wedge} 2+(1-4)^{\wedge} 2\right)=\operatorname{sqrt}(25+9)=\operatorname{sqrt}(34) ? 5.83$ units.
2. What is the center and radius of the circle with equation $(x+2)^{\wedge} 2+(y-5)^{\wedge} \mathbf{2}=16$ ?
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 $2 x^{\wedge} 2+3 x-5=0$ ?
A. -31
B. -11
C. 11
D. 31

Solution: D. The discriminant is $b^{\wedge} 2-4 a c=3^{\wedge} 2-4(2)(-5)=31$, 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 $\mathbf{d}=\operatorname{sqrt}((3-$ $\left.(-1))^{\wedge} 2+(-4-2)^{\wedge} 2\right)=\operatorname{sqrt}(16+36)=\operatorname{sqrt}(52) ? 7.21$ units.
5. What is the equation of the circle with center $(-3,4)$ and radius $\mathbf{6}$ ?
A. $(x+3)^{\wedge} 2+(y-4)^{\wedge} 2=6$
B. $(x-3)^{\wedge} 2+(y+4)^{\wedge} 2=36$
C. $(x+3)^{\wedge} 2+(y-4)^{\wedge} 2=36$
D. $(x-3)^{\wedge} 2+(y+4)^{\wedge} 2=6$

Solution: C. The equation of a circle with center $(h, k)$ and radius $r$ is $(x-h)^{\wedge} \mathbf{2}+(y-k)^{\wedge 2}=$ $r^{\wedge} 2$. Therefore, the equation of the circle with center $(-3,4)$ and radius 6 is $(x+3)^{\wedge} 2+(y-$ 4)^2 $=36$.
6. What are the solutions of the quadratic equation $x^{\wedge} 2-5 x+6=0$ ?
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 $x^{\wedge} 2+y^{\wedge} 2-6 x+8 y-19=0$ ?
A. Center: (3, -4); Radius: 5
B. Center: $(-3,4)$;

