Practice Questions of Lecture 13 to 15

Q #1: Convert the following equation into the standard form of circle and then identify the center and radius: $x^2 + y^2 + 4x - 4y + 4 = 0$

(Ans. center : $(2, -2)$; radius $= 2\sqrt{2}$)

Q #2: Convert the following equation into the standard form of circle and then identify the center and radius: $x^2 + y^2 - 3y - 4 = 0$.

(Ans. Center: (0, 3/2), radius: 5/2)

Q #3: Write the equation of circle if center is at (-1, 2) and diameter is 8.

(Ans. $x^2 + y^2 + 2x - 4y - 11 = 0$)

Q #4: Find the vertex and focus of the given parabola $(x-2)^2 = 5(y+2)$.

Q #5: Find the vertex and focus of the given parabola $(y-2)^2 = -8(x-3)$.

Q #6: Represent the following equation in standard equation of parabola and then find the vertex and focus:

$$x^2 + 8x - 4y + 8 = 0 .$$

Q #7: Find the center and foci of the following ellipse.

(a) $\dfrac{(x-1)^2}{3^2} + \dfrac{(y-3)^2}{2^2} = 1$

(b) $\dfrac{(x+4)^2}{25} + \dfrac{(y-1)^2}{16} = 1$

(c) $\dfrac{(x-5)^2}{49} + \dfrac{(y+2)^2}{64} = 1$