

"Assignment # 06"

$$Q23) x^2 + y^2 + z^2 + 10x + 4y + 2z - 19 = 0$$

$$x^2 + 10x + y^2 + 4y + z^2 + 2z = 19$$

$$x^2 + 10x + 25 + y^2 + 4y + 4 + z^2 + 2z + 1 = 19 + 25 + 4 + 1$$

$$(x+5)^2 + (y+2)^2 + (z+1)^2 = 49$$

It is the equation of sphere whose general equation is

$$(x-x_0)^2 + (y-y_0)^2 + (z-z_0)^2 = r^2$$

$$(x_0, y_0, z_0) = (-5, -2, -1) \text{ \& } r = 7$$

$$Q25) 2x^2 + 2y^2 + 2z^2 - 2x - 3y + 5z - 2 = 0$$

÷ by 2

$$x^2 + y^2 + z^2 - x - \frac{3}{2}y + \frac{5}{2}z - 1 = 0$$

$$x^2 - x + y^2 - \frac{3}{2}y + z^2 + \frac{5}{2}z = 1$$

$$x^2 - x + \frac{1}{4} + y^2 - \frac{3}{2}y + \frac{9}{4} + z^2 + \frac{5}{2}z + \frac{25}{4} = \frac{27}{4}$$

$$\left(x - \frac{1}{2}\right)^2 + \left(y - \frac{3}{2}\right)^2 + \left(z + \frac{5}{2}\right)^2 = \frac{27}{4}$$

It is the equation of sphere whose general equation is $(x-x_0)^2 + (y-y_0)^2 + (z-z_0)^2 = r^2$

$$(x_0, y_0, z_0) = \left(\frac{1}{2}, \frac{3}{2}, -\frac{5}{2}\right)$$

$$r = \frac{3\sqrt{3}}{2}$$

$$Q27) x^2 + y^2 + z^2 - 3x + 4y - 8z + 25 = 0$$

$$x^2 - 3x + \frac{9}{4} + y^2 + 4y + 4 + z^2 - 8z + 16 = -25 + \frac{9}{4} + 4 + 16$$

$$x^2 - 3x + \frac{9}{4} + y^2 + 4y + 4 + z^2 - 8z + 16 = -25 + \frac{9}{4} + 4 + 16$$

$$\left(x - \frac{3}{2}\right)^2 + (y + 2)^2 + (z - 4)^2 = -\frac{11}{4}$$

no graph

This is the equation of sphere whose general equation is

$$(x - x_0)^2 + (y - y_0)^2 + (z - z_0)^2 = r^2$$

$$(x_0, y_0, z_0) = \left(\frac{3}{2}, -2, 4\right) \quad r =$$

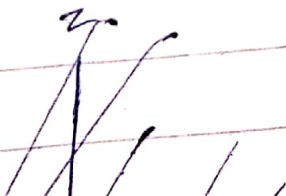
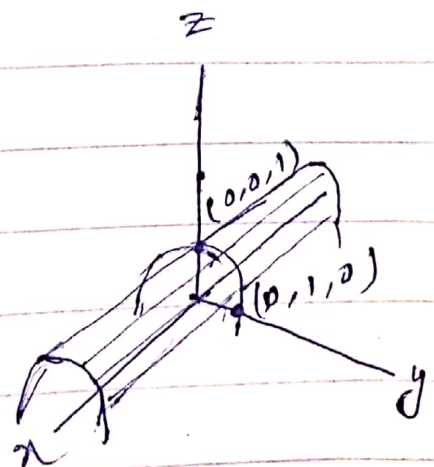
$$Q37) z = 1 - y^2$$

$$\text{put } y = 0$$

$$z = 1$$

$$\text{put } z = 0$$

$$y = 1$$



$$41) \quad 4x^2 + 9z^2 = 36$$

$$\cancel{(2x)^2} + \cancel{(3z)^2} =$$

$$\text{put } x = 0$$

$$z^2 = 4$$

$$\boxed{z = \pm 2}$$

$$\text{put } z = 0$$

$$x^2 = 9$$

$$x = \pm 3$$

