Name: Mosab Mohamed Group: B20-04 Variant: 2

Q 7. ans:

$9x^2 - 4y^2 + 18x + 16y - 43 = 0$

$(9x^2 + 18x) - (4y^2 + 16y) = 43$

$9(x^2 + 2x) - 4(y^2 + 4y) = 43$

$9(x^2 + 2x + 1 - 1) - 4(y^2 + 4y + 4 - 4) = 43$

$9(x+1)^2 - 4(y+2)^2 = 36$

$\frac{9(x+1)^2}{36} - \frac{4(y+2)^2}{36} = \frac{36}{36}$

$\frac{(x+1)^2}{4} - \frac{(y+2)^2}{9} = 1$

Center $= (-1, -2)$

$a^2 = 4 \quad a = 2 \quad b^2 = 9 \quad b = 3$

eccentricity $= \sqrt{1 + \frac{b^2}{a^2}} = \sqrt{1 + \frac{9}{4}} = \sqrt{3.25}$

$c^2 = a^2 + b^2 = 4 + 9 = 13 \quad c = \sqrt{13}$

foci $= (-1 \pm c, -2)$ $F_1 = (-1 - \sqrt{13}, -2)$ $F_2 = (-1 + \sqrt{13}, -2)$