480/81
Day 4
Notes

9.3 – WRITING EQUATIONS OF ELLIPSES

OBJECTIVE:

1) Given information, write the equation of an ellipse.

GENERAL EQUATION:

$$\frac{(x-3)^2}{16}+\frac{(y+4)^2}{49}=1$$

Center:

Vertices:

Co-vertices:

Foci:

Write the standard form of each ellipse.

1) $3x^2+12y^2=12$

2) $50x^2+2y^2=50$

3) $16x^2+4y^2+32x-8y=44$

4) $y^2-12y+2x^2+16x-10=0$

Write the standard equation for the ellipse with the given characteristics.

7) foci: (5, 0), (-5, 0)
vertices: (9, 0), (-9, 0)

8) endpoints of major axis at (4, 2) and (4, -8)
endpoints of minor axis at (1, -3) and (7, -3)

9) center (-4, 2), foci at (-4, 10) and (-4, -6)
length of minor axis is 12

10) foci: (0, 3) , (0, -3)
co-vertices: (1, 0) , (-1, 0)

Center: (0, 0) midpt of foci & midpt of co-vertices

$r_x = 1$ (from co-vertices)

Find r_y using $F^2 = r_y^2 - r_x^2$

$F = 3$ so $F^2 = 9$

$9 = r_y^2 - r_x^2$

$9 = r_y^2 - 1$

$r_y^2 = 10$

$$\frac{x^2}{1} + \frac{y^2}{10} = 1$$