Pre-Calculus

Notes 7.3

ELLIPSES

You should be able to:

- Put an equation in standard form of an ellipse •
- State the important info (center, vertices, foci, length the of major and minor axes) •
- Sketch a graph •

An **ELLIPSE** is the set of all points in a plane the sum of whose distance from two set points F_1 and F_2 is a constant. These points are called the **foci** (plural of **focus**).





	Horizontal	Vertical
Standard Form of Parabola		
Focal Axis		
Foci		
Vertices		
Major Axis		
Minor Axis		
Pythagorean Relation		



Ex 1) Given:	$4x^{2}$ -	$+9y^{2}$	= 36
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a) Put the standard Form f) Sketch the graph b) State the center _____ c) State the vertices _____ d) State the foci e) State the length of the major and minor axes. $\frac{(x+5)^2}{9} + \frac{(y-2)^2}{49} = 1$ Ex 2) Given: a) State the center _____ e) Sketch the graph b) State the vertices _____ c) State the foci _____ d) State the length of the major and minor axes. **Ex 3)** Given: $3x^2 + 5y^2 - 12x + 30y + 42 = 0$

f) Sketch the graph

a) Put the standard Form

- b) State the center _____
- c) State the vertices _____
- d) State the foci _____
- e) State the length of the major and minor axes.

Ex 4) Given: $3x^2 + 5y^2 - 12x + 30y + 42 = 0$	
	a) Put the standard Form
	b) State the center
	c) State the vertices
	d) State the foci
	e) State the length of the major axis
	f) State the length of the minor axes

Ex 5) Write the equation of the Ellipses with foci at (0, -3) and (0, 3) and the length of the minor axes is 4.

Ex 6) Write the standard conic form of the equation for the ellipse with vertices at (-5, 14) and (-5, 2) and a focus at $(-5, 8 \pm 2\sqrt{5})$

Ex 7) Write the standard conic form of the equation for the ellipse with foci at (5, 3) and (-9, 3) and the length of major axis is 20.