**PreCalculus 10.3 Ellipses**

**Ellipse -** the set of all points in a plane where the sum of the distances from two fixed points (foci) is a constant.

major axis = 2*a*

major axis = 2*a*

*F*1

*F*2

*F*1

*F*2

minor axis = 2*b*

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**Standard Form of the Equation of an Ellipse** with center

major axis is horizontal

Foci are *c* units from center

where

major axis is vertical

Example: Find the standard from of the equation of the ellipse.

Center:

Example: Find the equation of the ellipse with foci and with major axis = 10.

**Sketching an Ellipse**

Example:

Example: Write the equation of the ellipse: in Standard Form.

Foci?

Example: Find the center, vertices and foci of the ellipse.

When , the ellipse is a circle

**Definition of Eccentricity:** The eccentricity of an ellipse is: