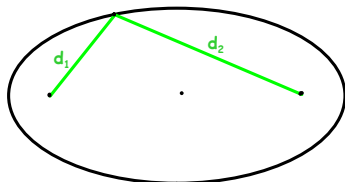


Ellipses – Graphing

Ellipse

An ellipse is the set of all points (x, y) the sum of whose distances from two distinct fixed points (foci) is constant.

The foci of an ellipse lie on the major axis, c units from the center where $c^2 = a^2 - b^2$.



$$d_1 + d_2 = \text{constant}$$

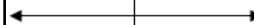
click blue dot below for interactive demo:

<http://mathworld.wolfram.com/Ellipse.html>



Horizontal Ellipse

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



Center (C) _____

Vertices (V) _____

Co-vertices (CV) _____

Foci (F) _____

major axis length = _____

minor axis length = _____

Vertical Ellipse

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



Center (C) _____

Vertices (V) _____

Co-vertices (CV) _____

Foci (F) _____

major axis length = _____

minor axis length = _____

Ellipses - Translated/Shifted Ellipses

Horizontal Ellipse

$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$$

Vertical Ellipse

$$\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$$

Example 1:

$$\frac{x^2}{25} + \frac{y^2}{4} = 1$$

C _____

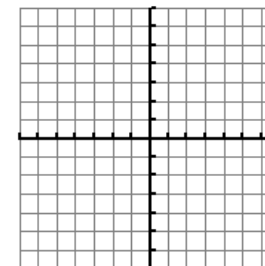
V _____

CV _____

F _____

major length = _____

minor length = _____



Example 2:

$$\frac{x^2}{1} + \frac{y^2}{9} = 1$$

C _____

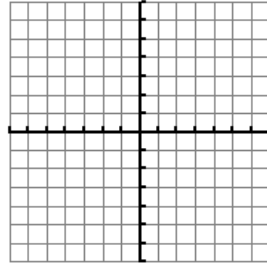
V _____

CV _____

F _____

major length = _____

minor length = _____



Example 3:

$$\frac{(x-2)^2}{4} + \frac{(y+3)^2}{9} = 1$$

C _____

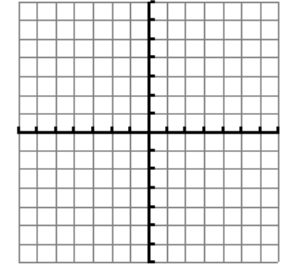
V _____

CV _____

F _____

major length = _____

minor length = _____



Example 4:

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

C _____

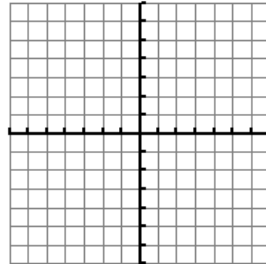
V _____

CV _____

F _____

major length = _____

minor length = _____



Attachments

Parabolas Writing Equations Outline.pdf

Parabolas Writing Equations WS.docx

Parabolas Writing Equations WS.pdf

Parabolas - Graphing Notes Outline.pdf

Parabolas - Graphing WS .docx

Parabolas - Graphing WS .pdf