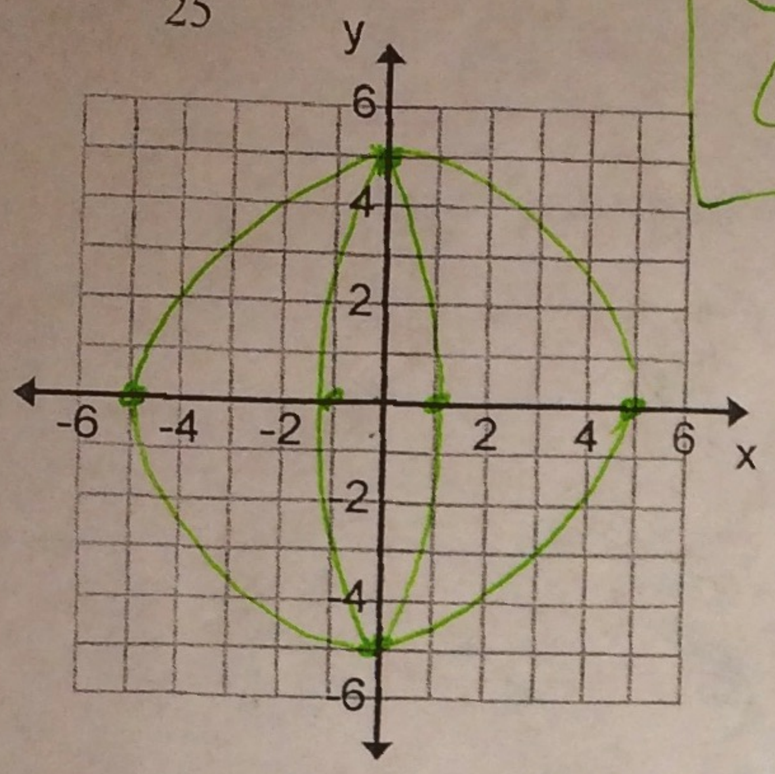
Solve each System by Graphing

Name Key

1. $x^2 + y^2 = 25$

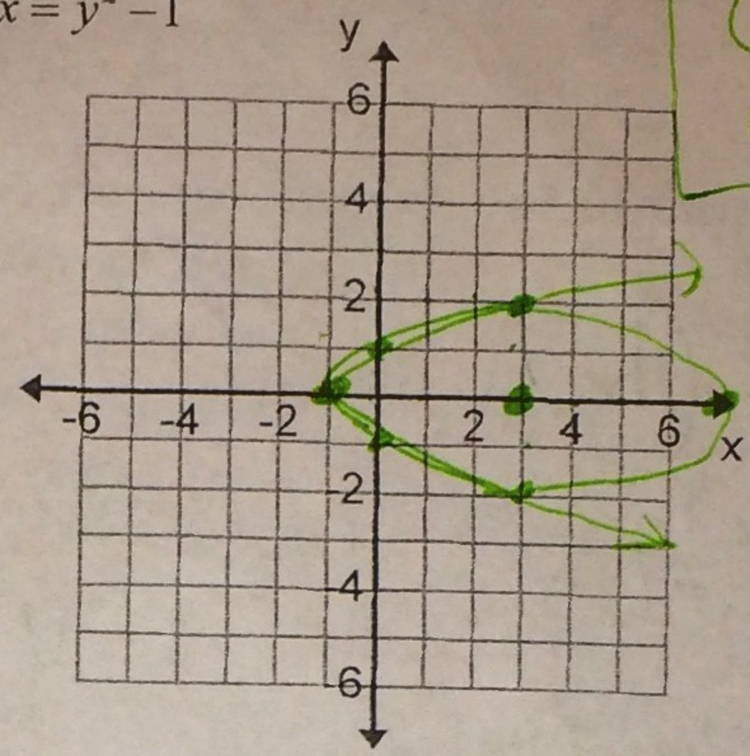
$x^2 + \frac{y^2}{25} = 1$



(0,5)
(0,-5)

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

$x = y^2 - 1$



(-1,0)
(3,2)
(3,-2)

Solve each System by Algebraically

3. $y^2 - 2x^2 = 1$

$y^2 + x^2 = 4$

$y = 2x^2 + 1$

$y^2 + 2x^2 + 1 = 4$

$3x^2 = 3$

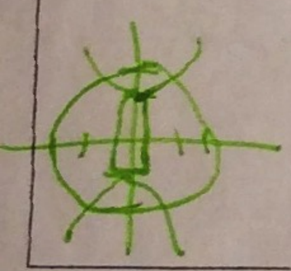
$x^2 = 1$

$x = \pm 1$

$y^2 + 1 = 4$

$y^2 = 3$

$y = \pm\sqrt{3}$

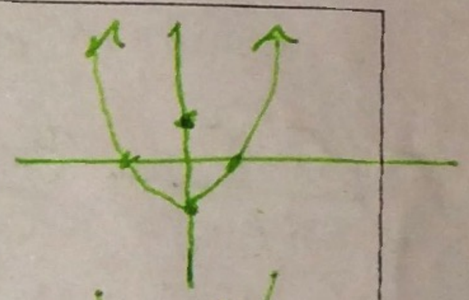


$(1,\sqrt{3})$ $(1,-\sqrt{3})$
$(-1,\sqrt{3})$ $(-1,-\sqrt{3})$

4. $y = -x^2 + 1$

$x = y^2 - 1$

$x^2 = -y + 1$



$x = (-x^2+1)^2 - 1$

$x = x^4 - 2x^2 + 1 - 1$

$0 = x^4 - 2x^2 - x$

$0 = x(x^3 - 2x - 1)$

~~$(-y+1) = (y^2-1)^2$~~

(-1,0) (0,1)

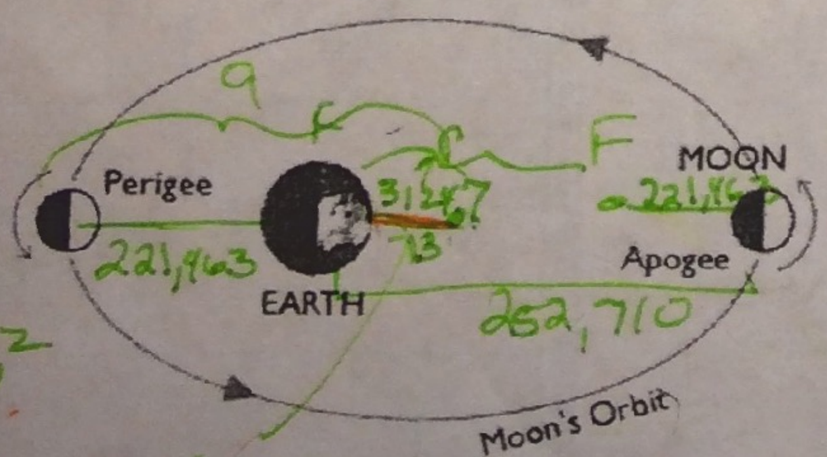
(-1,0)
(0,1)

Solve each equation:

5.

The Moon's apogee (farthest distance from Earth) is 252,710 miles, and perigee (closest distance to Earth) is 221,463 miles. Assuming the Moon's orbit of Earth is elliptical with Earth at one focus, calculate and interpret *a*, *b*, *c*, and *e*.

F



$f^2 = a^2 - b^2$

$a =$

c $f = 15623.5$

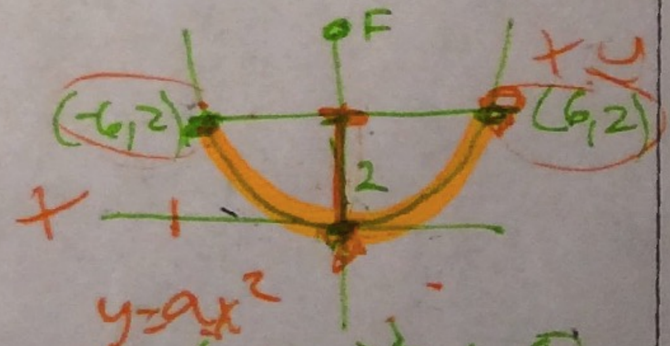
$b = 236,571.1$

$a = 237086.5$

$e = .065$

6. A satellite dish in the shape of a parabolic surface is 12 feet across and 2 feet deep. Satellite signals strike the surface of the dish and are reflected to the focus, where a receiver is located. How far from the base of the dish should the receiver be placed?

4.5



$y = ax^2$

$y = a(x-0)^2 + 0$

$2 = a(6)^2$

$\frac{1}{18} = a$

$y = \frac{1}{18}(x)^2$