CONICS -- PARABOLAS

$y = x^2$ $\quad x = y^2$

(1)

$$(x-2)^2 = 8(y+1)$$

$4a$ $\quad h$ $\quad k$

V: $(2, -1)$

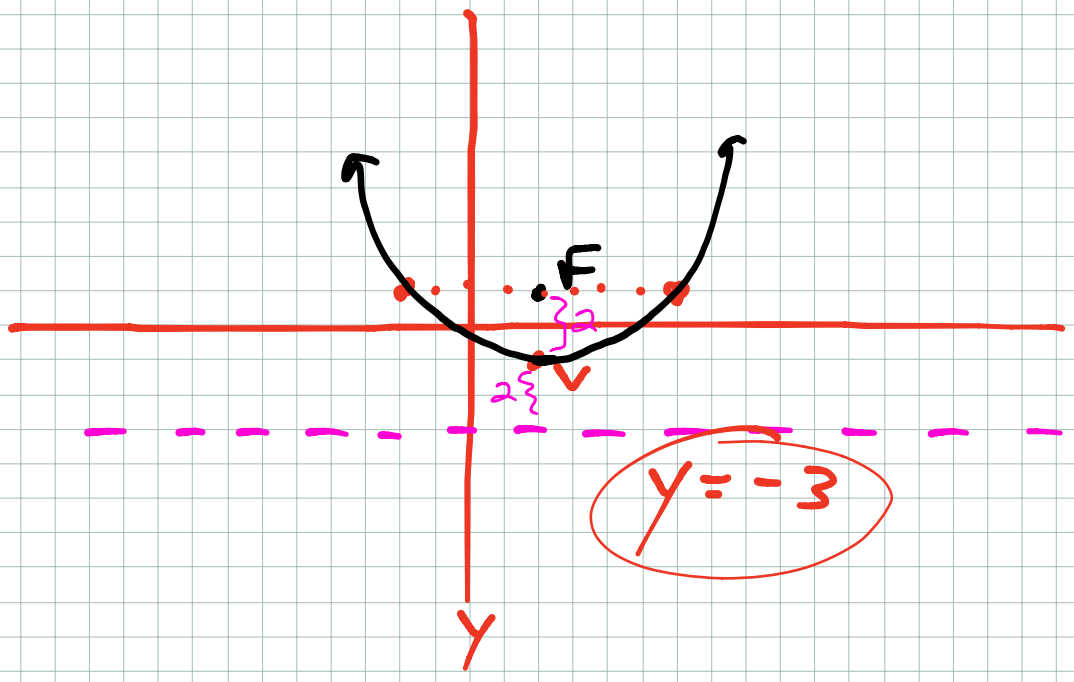
Focus: $(2, 1)$

Directrix: $y = -3$

$4a = 8$

$a = 2$

Points on the Latus Rect. : $(-2, 1)$ $(6, 1)$



$y = x^2$

$x = y^2$

(2)

$(y+3)^2 = -12(x-2)$

$4a$

k h

V: $(2, -3)$

Focus: $(-1, -3)$

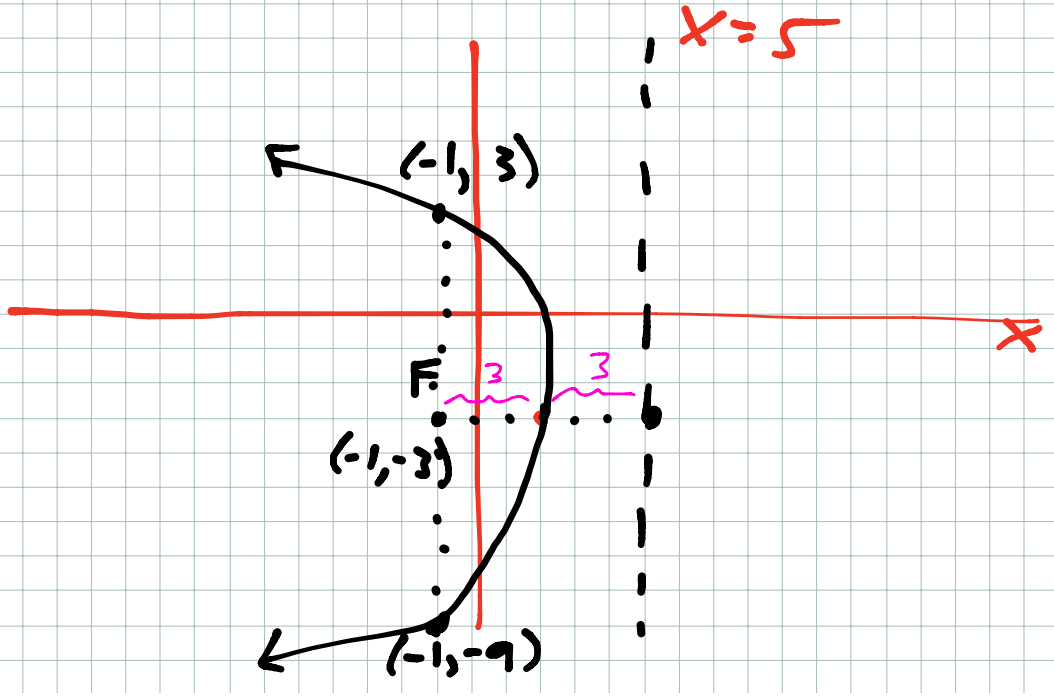
Directrix: $x = 5$

$4a = -12$

$a = -3$

left

Points on the Latus Rect. : $(-1, 3)$ $(-1, -9)$



① $(x-3)^2 = 12(y-2)$

Vertex:

Focus:

Directrix:

Points on the Latus Rectum:

ANSWER:

Vertex: $(3,2)$

Focus: $(3,5)$

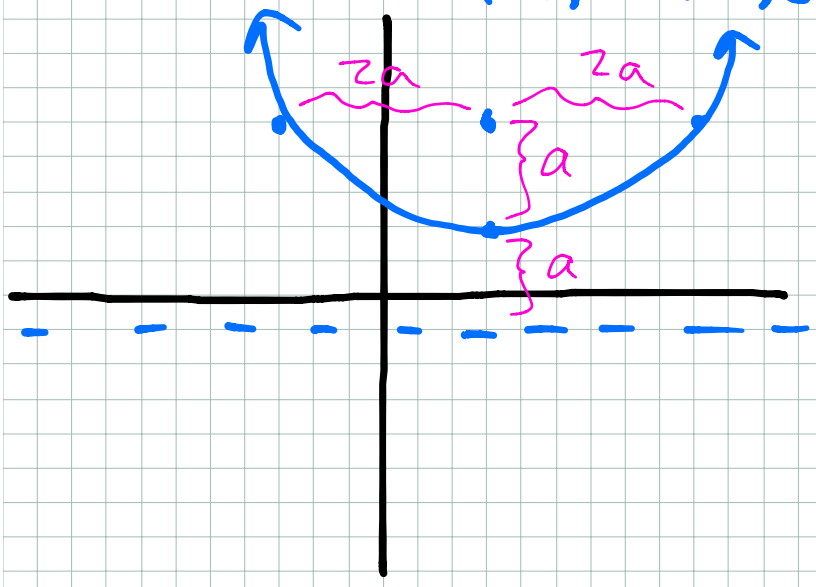
Directrix: $y=-1$

$4a = 12$

$a = 3$

Points on the Latus Rectum:

$(-3,5)(9,5)$



(7) $(x+1)^2 = -8(y-4)$

Vertex:

Focus:

Directrix:

Points on the Latus Rectum:

ANSWER:

Vertex: $(-1, 4)$

$4a = -8$

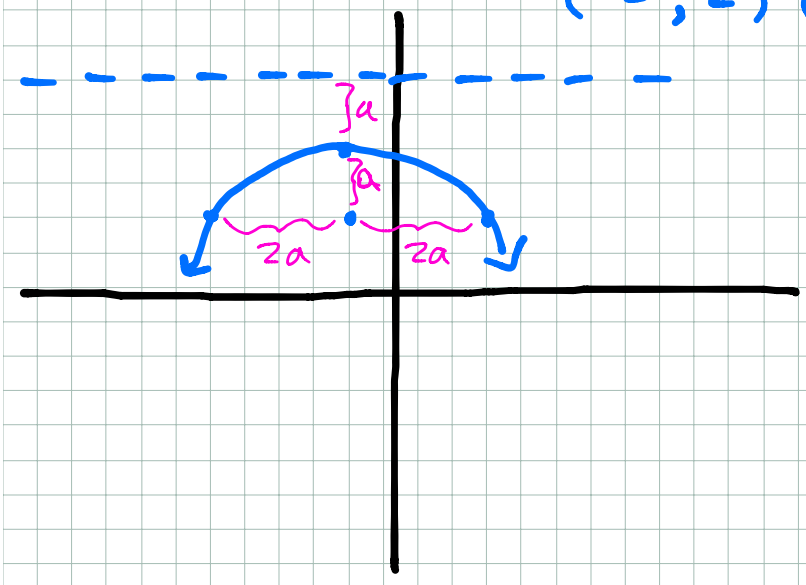
$a = -2$

Focus: $(-1, 2)$

Directrix: $y = 6$

Points on the Latus Rectum:

$(-5, 2)$ $(3, 2)$



③ $(y-4)^2 = -12(x+3)$

Vertex:

Focus:

Directrix:

Points on the Latus Rectum:

ANSWER:

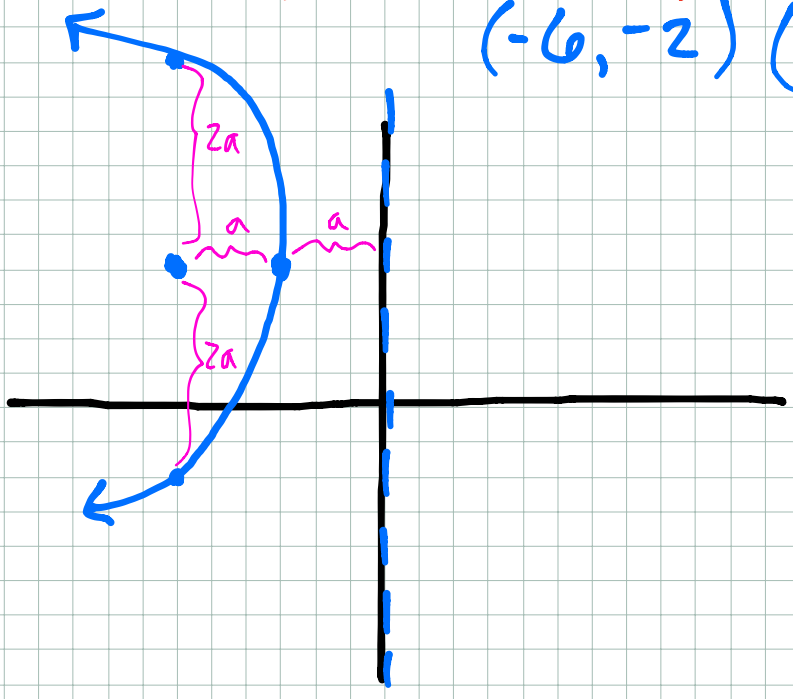
Vertex: $(-3, 4)$ $\quad 4a = -12$

Focus: $(-6, 4)$ $\quad a = -3$

Directrix: $x = 0$ or y-axis

Points on the Latus Rectum:

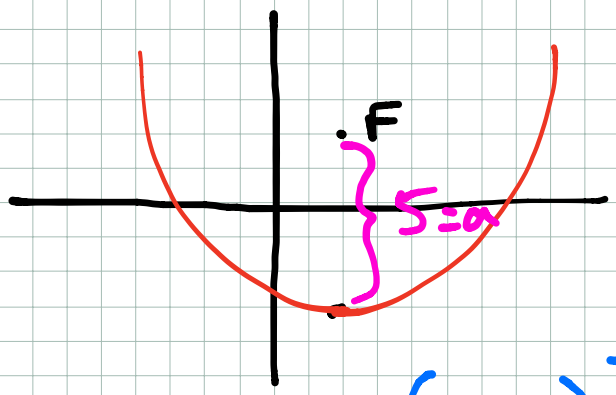
$(-6, -2)$ $(-6, 10)$



Write the Equation of the Parabola given:

① Vertex : (2, -3)

Focus: (2, 2)



$y = x^2$ $x = y^2$

$(x-2)^2 = \boxed{20}(y+3)$

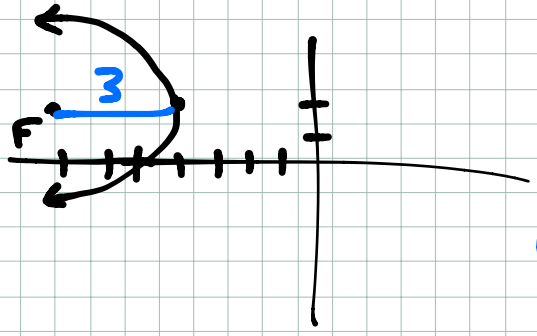
$4a$

$4(5)$

②

Vertex: (-4, 2)

Focus: (-7, 2)



$y = x^2$ $x = y^2$

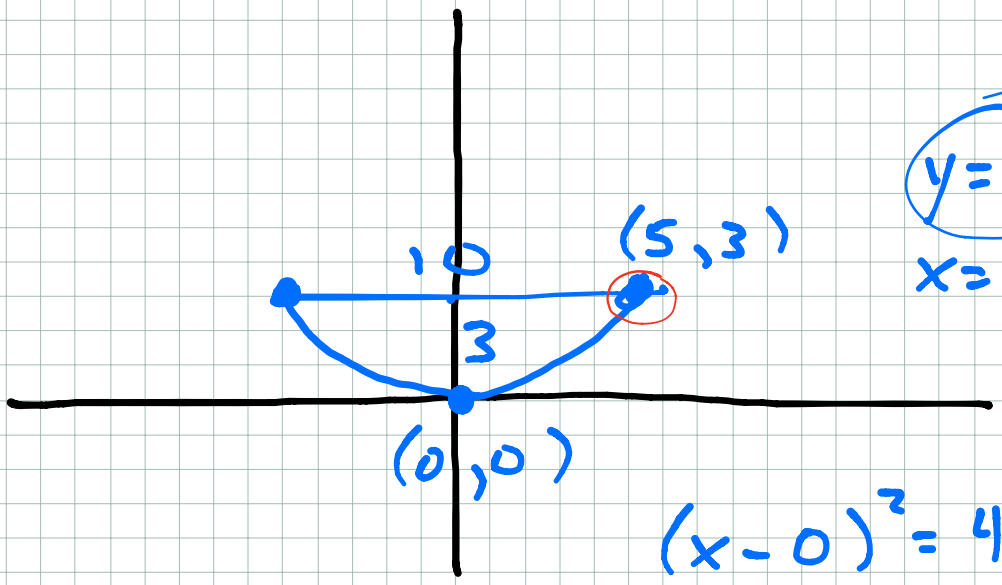
$(y-2)^2 = -12(x+4)$

$4a$

Satellite Dish is 10 ft. across at the widest part.

3 feet deep.

Where will the concentration point be located?



$y = x^2$

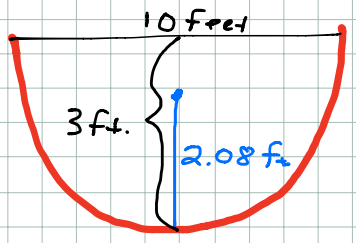
$x = y^2$

$(x-0)^2 = 4a(y-0)$

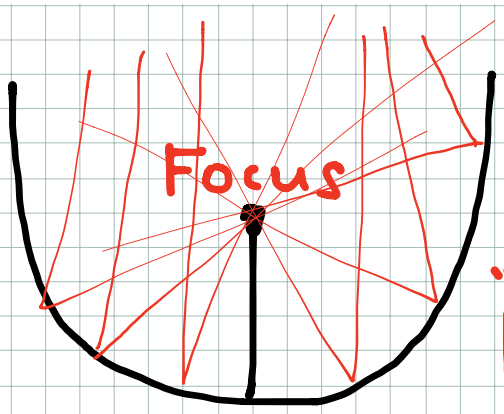
$5^2 = 4a(3)$

$\frac{25}{12} = \frac{12a}{12}$

$a \cong 2.08$ ft.



Concentration point 2.08 ft. away from the Vertex.



"parabaloid"