PRECALC - BE | WEDNESDAY 3-31-10

① $a = -2$ find $6 - \frac{1}{4a}$

② $a = -\frac{1}{4}$ find $-1 - \frac{1}{4a}$

③ graph $y = 5$

④ graph $x = -2$

- Homework review.

PRECALC. Homework Review. Pg. 659 # 14, 18

(14) $x^2 = -4(y-3)$

PUT IN VERTEX FORM (h,k) $\Rightarrow$ $\boxed{y = a(x-h)^2 + k}$

$x^2 = -4y + 12$

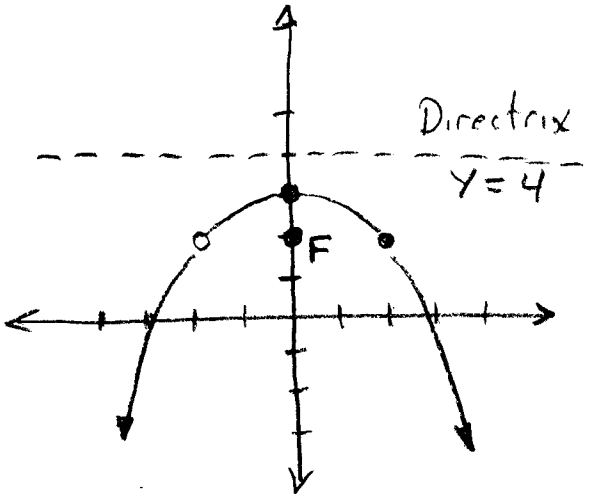
$\frac{4y}{4} = \frac{-x^2}{4} + \frac{12}{4}$

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

$y = -\frac{1}{4}(x-0)^2 + 3$ $\quad \therefore$ $\boxed{\text{VERTEX } (0,3)}$

h $\quad$ k

a IS $\ominus$ $\therefore$ AOS $\Rightarrow x = 0$



x	y
2	2

FOCUS $(h, k + \frac{1}{4a})$

DIRECTRIX $\Rightarrow y = k - \frac{1}{4a}$

$F(0, 3 + \frac{1}{4(-\frac{1}{4})})$

$\boxed{F(0, 3-1) = (0,2)}$

DIRECTRIX $\Rightarrow y = 3 - \frac{1}{4(-\frac{1}{4})}$

$y = 3 + 1$

$\boxed{y = 4}$

(18) $x^2 + 10x + 25 = -8y + 24$

$$y = a(x-h)^2 + k$$

$$8y = -x^2 - 10x - 1$$

$$8y = -1(x^2 + 10x + 5^2) - 1 + 25$$

$$\frac{8y}{8} = \frac{-1(x+5)^2}{8} + \frac{24}{8}$$

$$y = -\frac{1}{8}(x+5)^2 + 3$$

h, K

$V(-5, 3)$

AOS

Focus $\Rightarrow (h, k + \frac{1}{4a})$

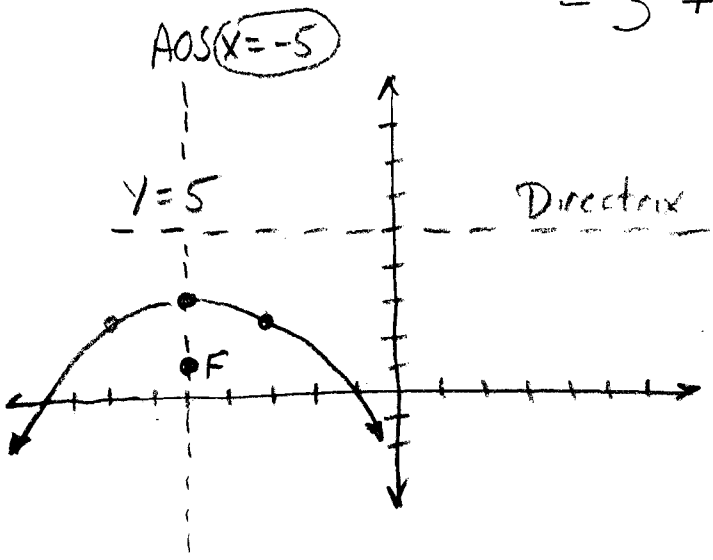
$\Rightarrow (-5, 3 + \frac{1}{4(-\frac{1}{8})}) = (-5, 3 - \frac{1}{\frac{1}{2}})$

$= (-5, 1) =$ Focus

Directrix $\Rightarrow y = k - \frac{1}{4a}$

$= 3 + \frac{1}{\frac{1}{2}} = 5 \therefore y = 5$

Directrix



X	Y
-4	$2\frac{7}{8}$

Precalculus Name_____

Practice for Q4 Week 3

Date_____ Period____

Identify the vertex, focus, axis of symmetry, and directrix of each. Then sketch the graph.

1) $-x^2 + 2x + y + 4 = 0$

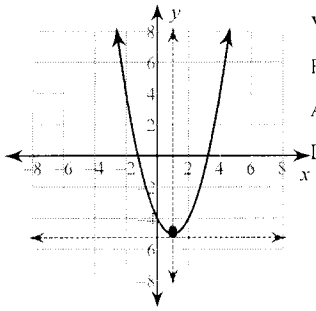
2) $-x^2 - 8x + 2y - 24 = 0$

3) $x^2 + 12x + y + 38 = 0$

4) $-x^2 - 6x + 4y + 11 = 0$

Answers to Practice for Q4 Week 3 (ID: 1)

1)



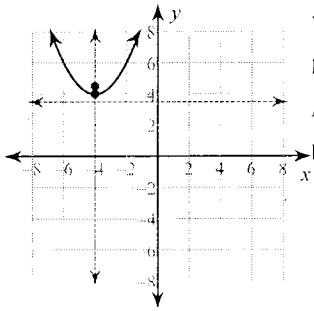
Vertex: $(1, -5)$

Focus: $\left(1, -\frac{19}{4}\right)$

Axis of Sym.: $x = 1$

Directrix: $y = -\frac{21}{4}$

2)



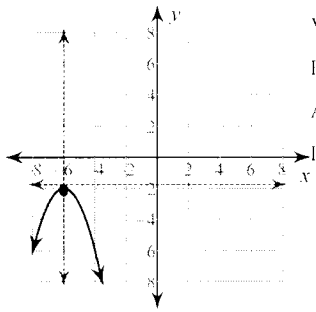
Vertex: $(-4, 4)$

Focus: $\left(-4, \frac{9}{2}\right)$

Axis of Sym.: $x = -4$

Directrix: $y = \frac{7}{2}$

3)



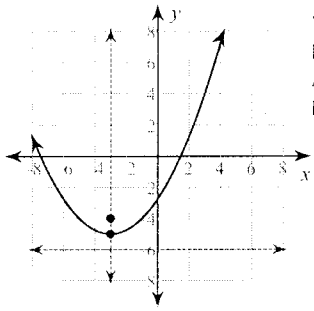
Vertex: $(-6, -2)$

Focus: $\left(-6, -\frac{9}{4}\right)$

Axis of Sym.: $x = -6$

Directrix: $y = -\frac{7}{4}$

4)



Vertex: $(-3, -5)$

Focus: $(-3, -4)$

Axis of Sym.: $x = -3$

Directrix: $y = -6$