Warm Up Questions

1. $y = -x^2 - 6x - 8$

2. $y = -3x^2 - 6x - 9$

3. $y = x^2 - 4x + 3$

1. $y = -x^2 - 6x - 8$

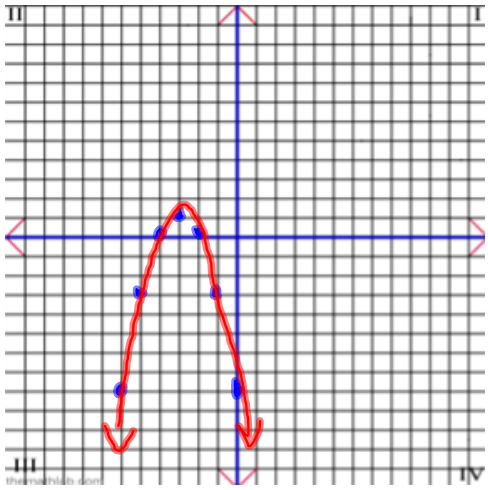
$y + 8 = -x^2 - 6x$

$y + 8 = -1(x^2 + 6x \quad)$

$y + 8 \overset{-9}{=} -1(x^2 + 6x + 9)$

$y - 1 = -1(x+3)(x+3)$

$y = -1(x+3)^2 + 1$



Vertex: $(-3, 1)$

SF: 1

Dir: ↓

Roots: $-4, -2$

over	down
1	1
2	4
3	9

2. $y = -3x^2 - 6x - 9$

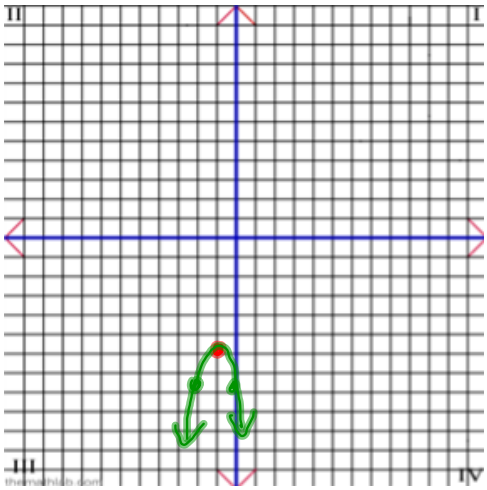
$y + 9 = -3x^2 - 6x$

$y + 9 = -3(x^2 + 2x)$

$y + 9 - 3 = -3(x^2 + 2x + 1)$

$y + 6 = -3(x+1)(x+1)$

$y = -3(x+1)^2 - 6$



Vertex: $(-1, -6)$

SF: 3

Dir: ↓

Roots: none

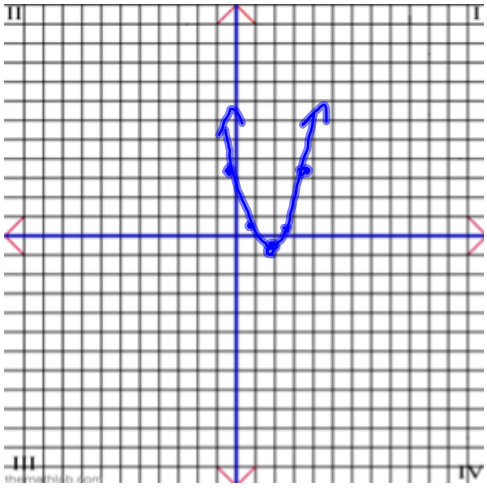
over	down
1	$1 \cdot 3 = 3$
2	$4 \cdot 3 = 12$
3	$9 \cdot 3 = 27$

3. $y = x^2 - 4x + 3$

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

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

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



Vertex: $(2, -1)$

SF: 1

Dir: ↑

Roots: $1, 3$

over	up
1	1
2	4
3	9