3.4 Graphing y=a(x - h) + k

Steps
Plot the vertex
Up or down?
Count over & up/down to get 4 more points
Draw a smooth curve

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

If there $a >$ then there is a stretch factor a

from the vertex	
1	1 x a
2	4 x a
3	9 x a

If $0 < a < 1$ then, there is a compression by a factor $1/a$

from the vertex	
1	1 x a
2	4 x a
3	9 x a

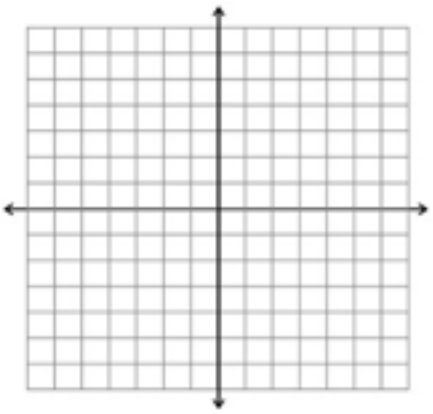
Ex 1 Complete the Table

Equation	direction of opening	vertex	equation of axis of symmetry	stretch factor	Range
y=a(x - h) + k	-a = down a = up	(h,k)	x=h	a	value that y can take $y \geq k$
y=-3/4(x + 4) - 7					
y=-2x - 3					
y=3(x -5) + 9					
	up	(-2,5)		7	
	down		x=3	-4	

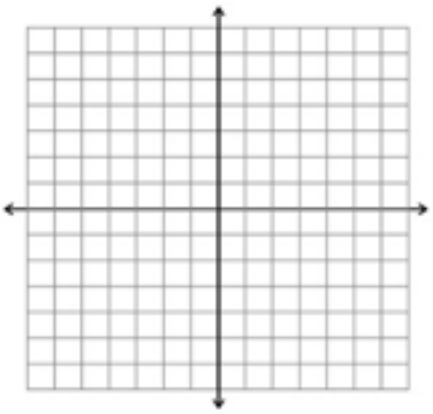
Ex 2 Write an equation for parabola

Ex 3 Graph. (show at least 5 points).

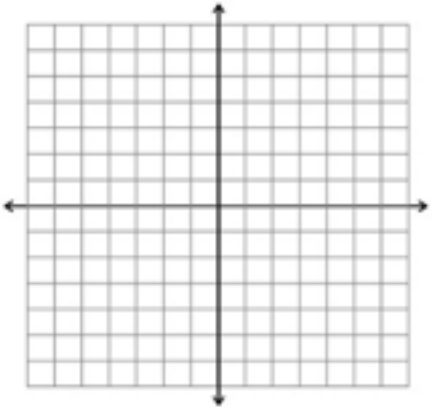
y=-3(x + 2) + 8



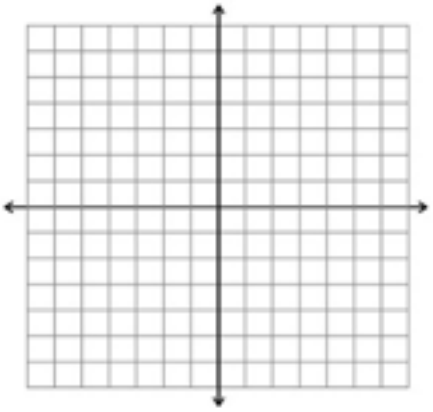
y= 1/4 (x - 3) - 2



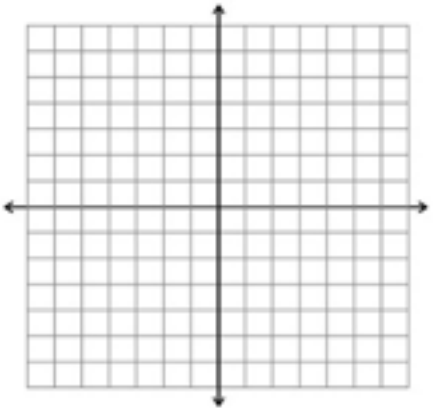
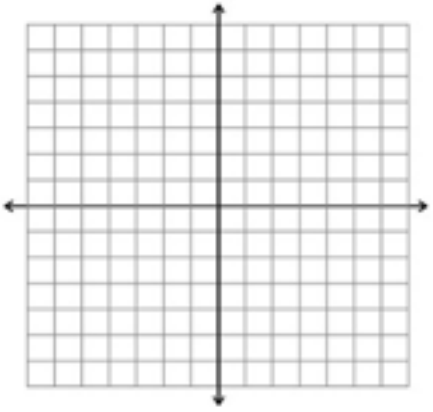
y= -(x + 1) - 2



y= -1/2x + 6



y= (x -4) - 3



y=2(x + 5) + 1