

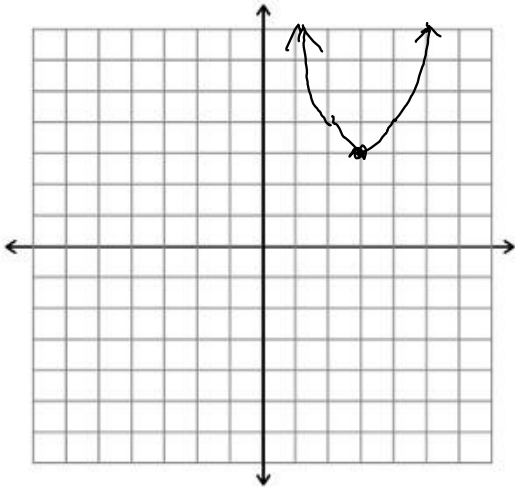
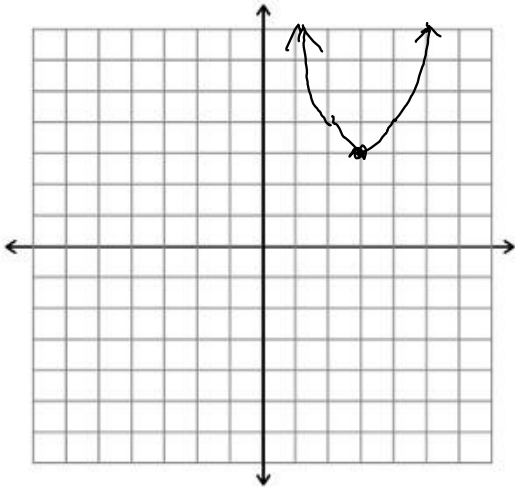
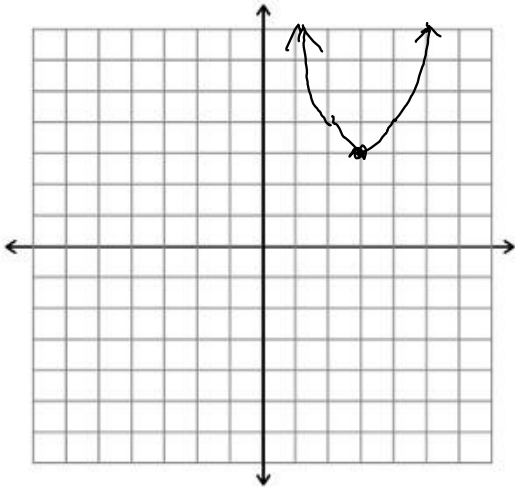
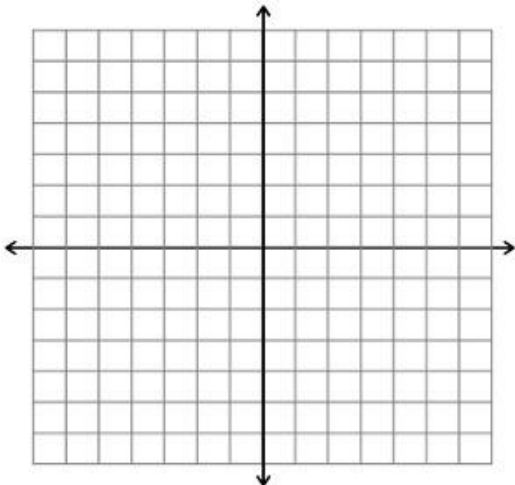
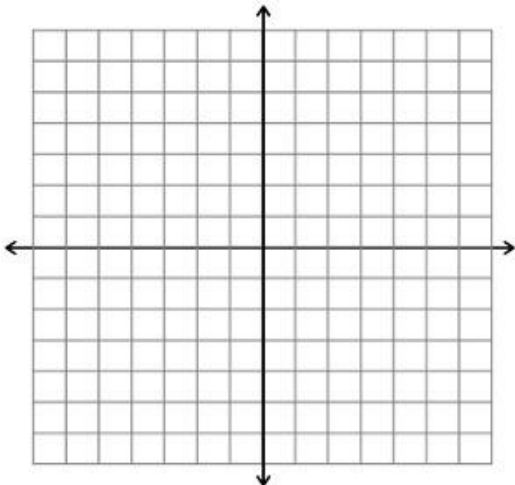
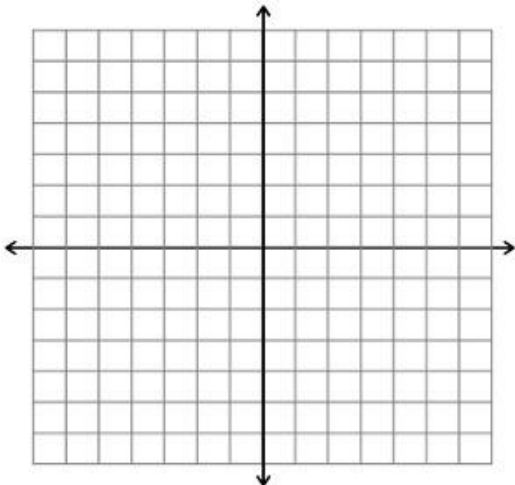
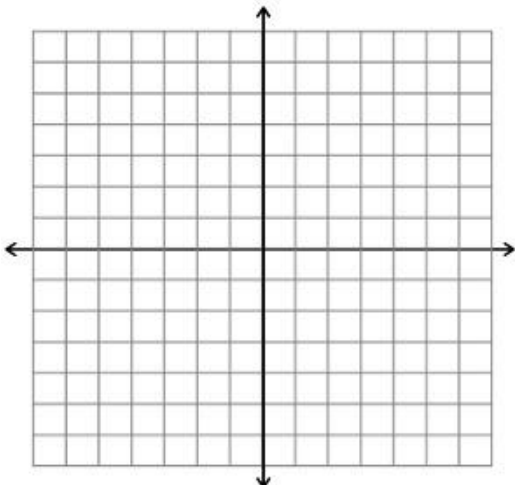
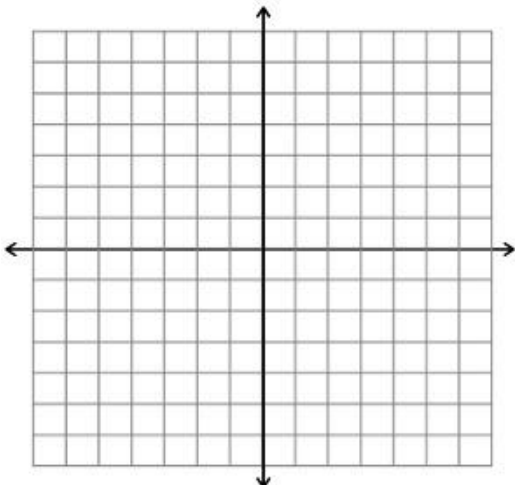
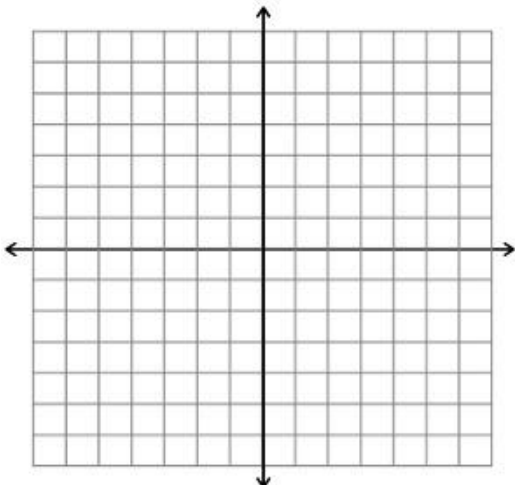
Quick plot note:

$x$	$x^2$
-1	1
0	0
1	1
2	4
3	9

First difference is  $2n+1$ ,  
 ie  $(n+1)^2 - n^2 = 2n+1$

## Lab 7.3 - Graphing Quadratic Functions

### Graphing Quadratic Functions

$y = x^2 - 6x + 12$  Find the vertex: $x = -\frac{b}{2a}$ $= \frac{6}{2} = 3$ $y(3) = 3^2 - 2 \cdot 3^2 + 12$ $= -3^2 + 12$ $= 3$ $a=1$ , vertex looks like $x^2$	<table><tr><th><math>x</math></th><th><math>y = x^2 - 6x + 12</math></th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	$x$	$y = x^2 - 6x + 12$													<table><tr><th colspan="2">Graph</th></tr><tr><td colspan="2"></td></tr></table>	Graph			
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$y = -3(x + 6)^2 + 4$  Find the vertex:	<table><tr><th><math>x</math></th><th><math>y = -3(x + 6)^2 + 4</math></th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	$x$	$y = -3(x + 6)^2 + 4$													<table><tr><th colspan="2"></th></tr><tr><td colspan="2"></td></tr></table>				
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## Writing the equation from the Graph

Vertex form:

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

