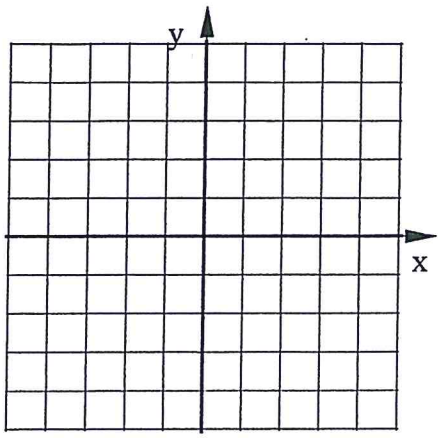
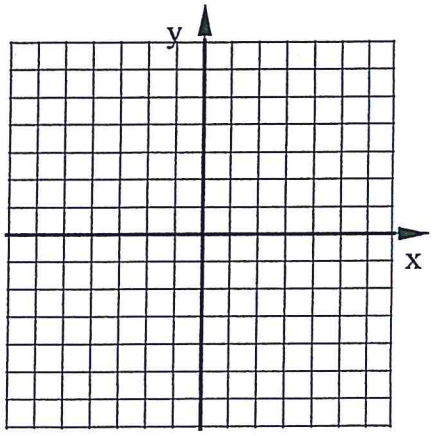
Bellwork Alg 2A Monday, February 6, 2017

Graph each parabola using at least 5 points. Connect the 5 points with a smooth curve. Put a large dot on the Vertex and label it with its coordinates. Draw the Line of Symmetry as a dashed line.

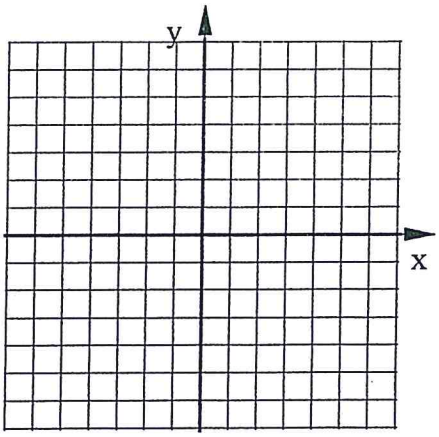
1. $y = -x^2 + 3$



2. $y = 2x^2 - 5$



3. Part of the equation for a parabola is $y = 3x^2$..... The Vertex of this parabola is $(4,-6)$. Plot this Vertex and draw the Line of Symmetry as a dashed line. Then find four other points on the parbola and connect them to finish the graph of this parabola.



4. For each quadratic below do the following:

i. Find the coordinates of the y-intercept.

ii. State if the vertex of each parabola is a Max or a Min?

a) $y = 3(2x - 9)(x - 11)$

i.

ii.

b) $y = -138x^2 + 99x + 108$

i.

ii.

c) $y = -1.5(x + 6)^2 + 23$

i.

ii.

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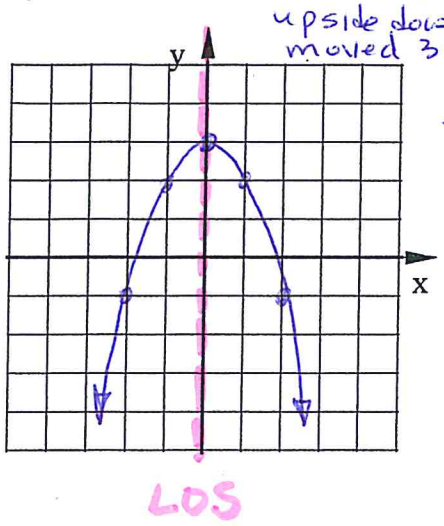
Answers

Graph each parabola using at least 5 points. Connect the 5 points with a smooth curve. Put a large dot on the Vertex and label it with its coordinates. Draw the Line of Symmetry as a dashed line.

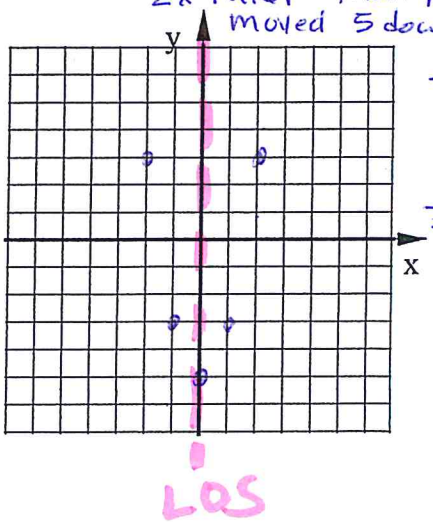
1. $y = -x^2 + 3$

same shape as $y = x^2$
upside down
moved 3 up

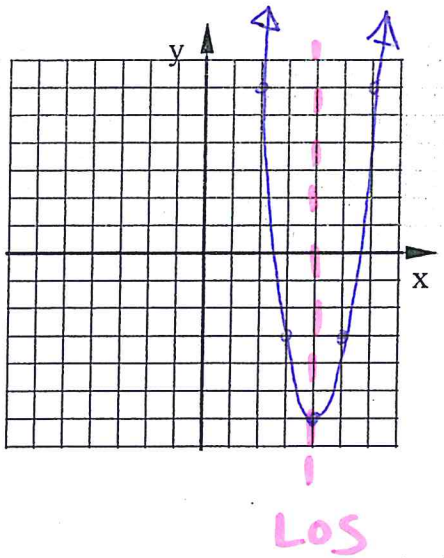


2. $y = 2x^2 - 5$

2x taller than $y = x^2$
moved 5 down



3. Part of the equation for a parabola is $y = 3x^2$..... The Vertex of this parabola is $(4, -6)$. Plot this Vertex and draw the Line of Symmetry as a dashed line. Then find four other points on the parbola and connect them to finish the graph of this parabola.



3 times taller than $y = x^2$

4. For each quadratic below do the following:
   i. Find the coordinates of the y-intercept.
   ii. State if the vertex of each parabola is a Max or a Min?

a) $y = 3(2x - 9)(x - 11)$

i. y-int $= 3(2(0) - 9)(0 - 11)$
$= 3(-9)(-11)$
y-int $= 297$

ii. Vertex is a MIN

2x	-9
x: $3x^2$	$-9x$
-11: $-22x$	$+99$

$= 3(2x^2 - 31x + 99)$
$= 6x^2 - 31x + 99$
opens up

b) $y = -138x^2 + 99x + 108$
opens down

i. y-int $= 108$

ii. Vertex is a Max

c) $y = -1.5(x + 6)^2 + 23$
opens down

i. y-int $= -1.5(0 + 6)^2 + 23$
$= -1.5(36) + 23$
y-int $= -31$

ii. Vertex is a max