Pre-Calculus 11

Name (KEY) ID: 1

Graphing Quadratics

Date _____ Period ____

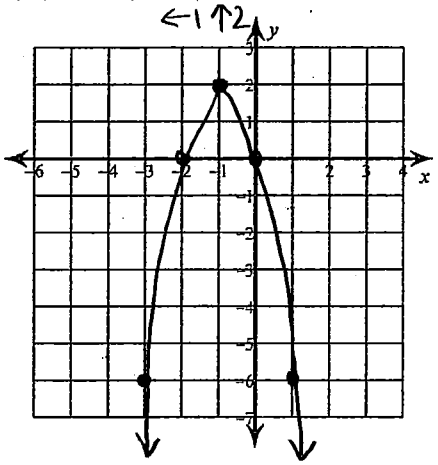
Sketch the graph of each function.

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

←1 ↑2

Steps: 1, 3, 5

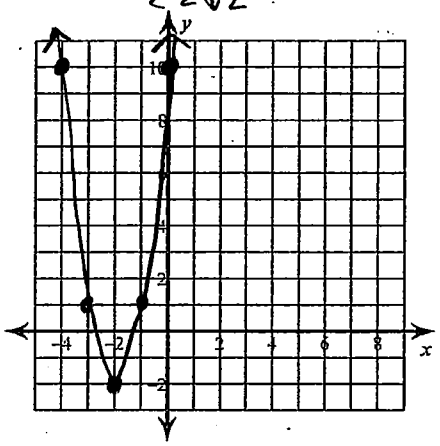
x-2: -2, -6, -10



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

←2 ↓2

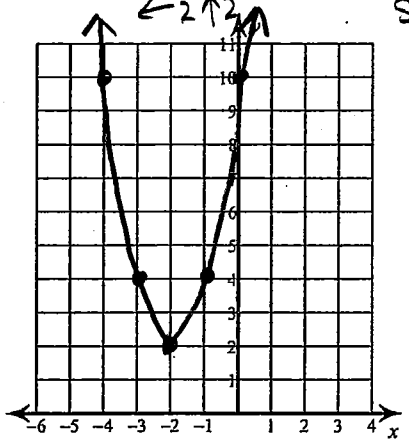
Steps x3: 3, 9, 15



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

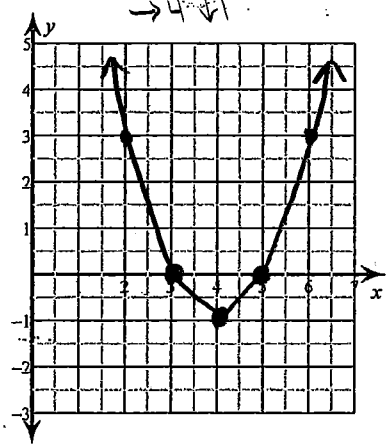
←2 ↑2

Steps x2: 2, 6, 10



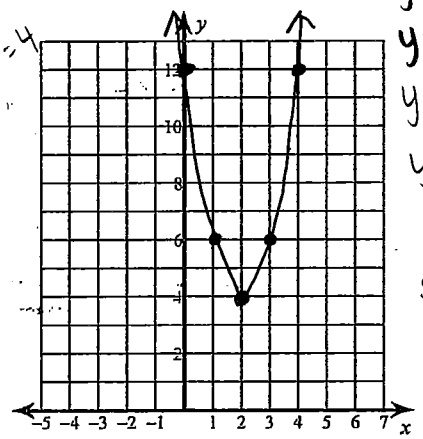
4) $y = (x-4)^2 - 1$

→4 ↓1



5) $y = 2x^2 - 8x + 12$

$\frac{1}{2}(-4) = -2$
$\hookrightarrow (-2)^2 = 4$



$y = 2(x^2 - 4x) + 12$

$y = 2(x^2 - 4x + 4 - 4) + 12$

$y = 2(x-2)^2 - 8 + 12$

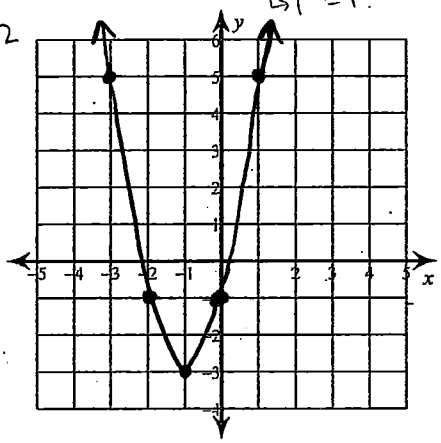
$y = 2(x-2)^2 + 4$

$\rightarrow 2 \uparrow 4$

Steps x2:
2, 6, 10

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

$\frac{1}{2}(2) = 1$
$\hookrightarrow 1^2 = 1$



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

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

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

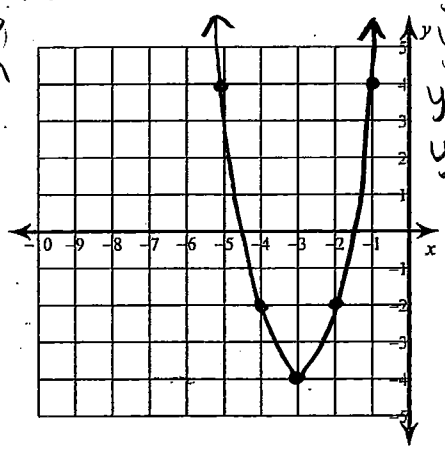
$y = 2(x+1)^2 - 3$

$\leftarrow 1 \downarrow 3$

Steps x2:
2, 6, 10

7) $y = 2x^2 + 12x + 14$

$\frac{1}{2}(6) = 3$
$\hookrightarrow 3^2 = 9$



$y = 2(x^2 + 6x) + 14$

$y = 2(x^2 + 6x + 9 - 9) + 14$

$y = 2(x+3)^2 - 18 + 14$

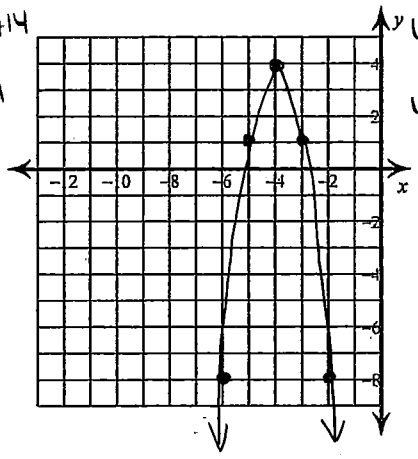
$y = 2(x+3)^2 - 4$

$\leftarrow 3 \downarrow 4$

Steps x2:
2, 6, 10

8) $y = -3x^2 - 24x - 44$

$\frac{1}{2}(8) = 4$
$\hookrightarrow 4^2 = 16$



$y = -3(x^2 + 8x) - 44$

$y = -3(x^2 + 8x + 16 - 16) - 44$

$y = -3(x+4)^2 + 48 - 44$

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

$\leftarrow 4 \uparrow 4$

Steps x-3:
-3, -9, -15