Unit 8 - Quadratic Functions

Standard: $Ax^2 + Bx + C$
Vertex: $a(x-h)^2 + K$

Learning Target #2: Graphing Quadratic Equations & Interpreting Their Different Forms

10) Which of these functions has a y-intercept of (0, 7)?

$(0,c) \to (0,7)$

Intercept: $a(x-p)(x-q)$

(a) $f(x) = x^2 + 2x + 7$ stand.   (a, b, c)
(b) $f(x) = 3x^2 - 7$ stand.   (0, -7)
(c) $f(x) = -(x+5)^2 + 7$ vertex.
(d) $f(x) = 7(x-1)(x+5)$ int.

11) What could be the equation of a parabola that opens down and has a vertex of (-3, -8)

(a) $y = -8(x+3)^2 + 8$ reflection. a is $(-)$
(b) $y = 7(x+3)^2 - 8$
(c) $y = -(x-3)^2 - 8$
(d) $y = -5(x+3)^2 - 8$ h K opp. same

12) What are the x-intercepts of the function $f(x) = (x+1)(x+3)$? → intercept form

$(x+1)$ $p = -1$ $x+1 = 0$ $(p, 0)$
$q = -3$ $-x - 1$ $(q, 0)$
$x = -1$

(a) (1, 0) and (3, 0)
(b) (-1, 0) and (-3, 0)
(c) (1, 0) and (-3, 0)
(d) (-1, 0) and (3, 0)

Learning Target #2: Graphs and Different Forms of Quadratic Functions

13) Which of the equations below could represents the graph at the right?

Intercept Form
(a) $y = (x-5)(x+1)$
(b) $y = -(x-5)(x+1)$
(c) $y = (x+5)(x-1)$
(d) $y = -(x+5)(x-1)$

x-intercepts: $(-5, 0)$ $(1, 0)$
$(p, 0)$ $(q, 0)$

$y = (x - (-5))(x - (1))$
$y = (x+5)(x-1)$

opens down → a is $(-)$
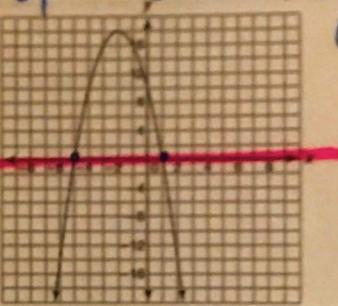
14) Which graph represents the equation $y = (x-3)^2 - 2$? → Vertex form

(a)

(b)

(c)

opens up

(d)

opens down

standard: y-intercept $(0, c)$
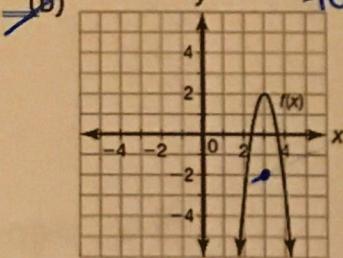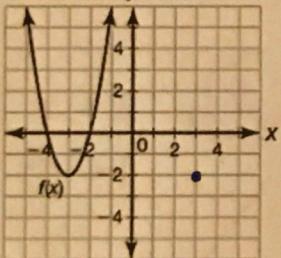
Vertex: vertex (h, K)
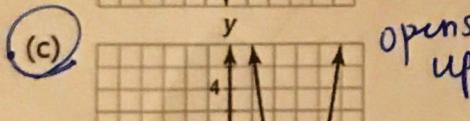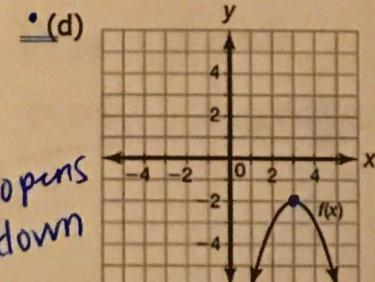
Intercept: intercepts
x-intercepts: $(p, 0)$ $(q, 0)$

y-intercepts: $(0, a \cdot p \cdot q)$

$y = a(x-h)^2 + K$ vertex: (h, K)
$h = 3$ $(3, -2)$
$K = -2$ $a = +1$ → graph opens up