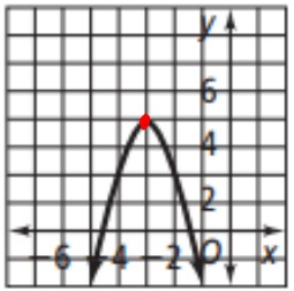
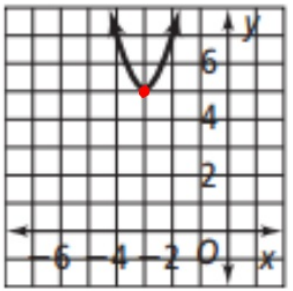
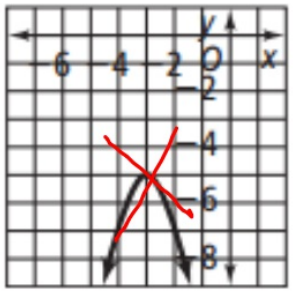
4.1 Review!

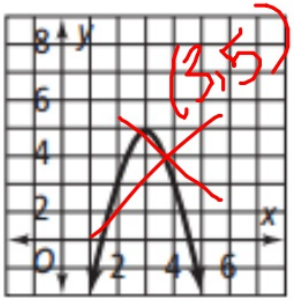
$y = a(x-h)^2 + k$ (h, k)

1. Which is the graph of the function $f(x) = -2(x + 3)^2 + 5$? $(-3, 5)$

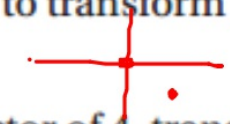
F 

G 

H 

I 

2. Which of the following best describes how to transform $y = x^2$ to the graph of $y = 4(x - 2.5)^2 - 3$? $(2.5, -3)$



A Translate 2.5 units left, stretch by a factor of 4, translate 3 units down.

B Translate 3 units right and 2.5 units down, stretch by a factor of 4.

Translate 2.5 units right, stretch by a factor of 4, translate 3 units down.

D Stretch by a factor of 4, translate 2.5 units left and 3 units down.

4.2 Review!

3. What is the vertex of the parabola $y = x^2 + 8x + 5$?

a=1 b=8

(A) (4, −11) (B) (−4, −11) (C) (−4, 5) (D) (4, 5)

$x = \frac{-b}{2a} = \frac{-(8)}{2(1)} = \frac{-8}{2} = -4$

$y = (-4)^2 + 8(-4) + 5$

$(-4, -11)$

4. What is the vertex form of the function $y = 3x^2 - 12x + 17$?

a=3 b=-12

(F) $y = 3(x - 2)^2 + 5$ (H) $y = 3(x - 2)^2 + 11$

(G) $y = 3(x - 2)^2 + 17$ (I) $y = 3(x + 2)^2 + 5$

$x = \frac{-b}{2a} = \frac{-(-12)}{2(3)} = \frac{12}{6} = 2$

$y = 3(2)^2 - 12(2) + 17$

$y = 5$ ✓

$(2, 5) \longrightarrow y = a(x-h)^2 + k \longrightarrow y = 3(x-2)^2 + 5$

4.3 Review!

5. A baseball coach records the height at every second of a ball thrown in the air. Some of the data appears in the table below.

Time (s)	0	1	3
Height (ft)	0	64	96

(0,0)
(1,64)
(3,96)

Which equation is a quadratic model for the data?

(A) $h = -16t^2 + 80t$

(B) $h = -48t^2 + 112t$

(C) $h = -32t^2 + 80t$

(D) $h = -16t^2 + 64t$

6. A baseball is hit so that its height above ground is given by the equation $h = -16t^2 + 96t + 4$, where h is the height in feet and t is the time in seconds after it is hit. Show your work.

a. How long does it take the baseball to reach its highest point?

t?

$t = \frac{-(96)}{2(-16)} = \frac{-96}{-32} = 3$ sec.

b. How high will it go?

h?

$h = -16(3)^2 + 96(3) + 4$

$h = 148$ ft.