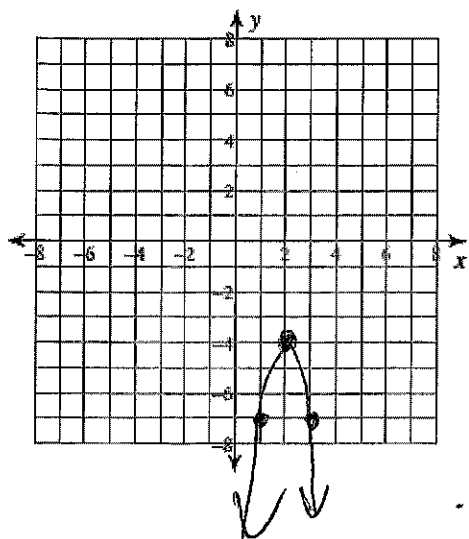


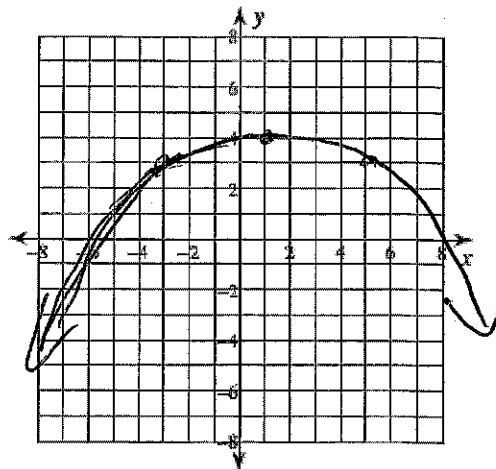
Identify the Vertex and Axis of Symmetry for each equation. Then, make a table and graph the equation.

15)  $f(x) = -3(x-2)^2 - 4$



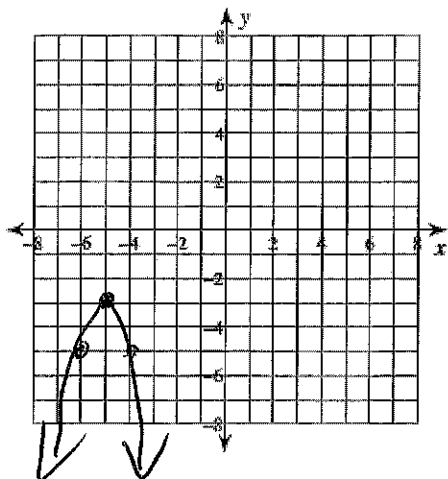
V: (2, -4)  
AoS:  $x = 2$

16)  $f(x) = -\frac{1}{4}(x-1)^2 + 4$



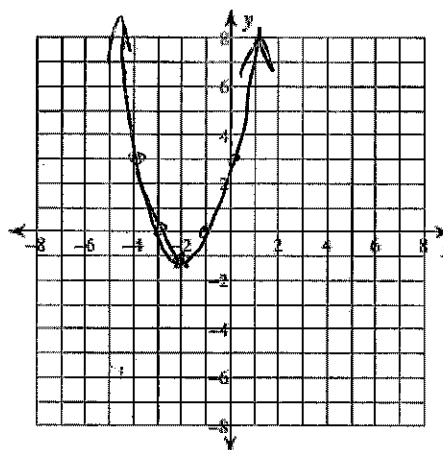
V: (1, 4)  
AoS:  $x = 1$

19)  $f(x) = -2(x+5)^2 - 3$



V: (-5, -3)  
AoS:  $x = -5$

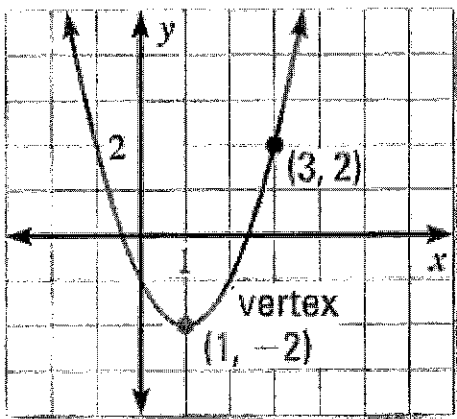
20)  $f(x) = (x+2)^2 - 1$



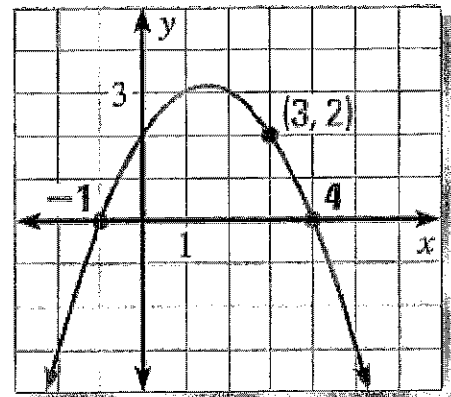
V: (-2, -1)  
AoS:  $x = -2$

21)

Write the equation of each parabola shown...in whichever form is easiest!



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



Hint: Write a "general equation" and then solve for the a-value.

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

$$2 = a(3 - 1)^2 - 2$$

$$+2 \qquad +2$$

$$4 = a(2)^2$$

$$\frac{4}{4} = \frac{a(4)}{4} \rightarrow a = 1$$

$$y = a(x + 1)(x - 4)$$

$$2 = a(3 + 1)(3 - 4)$$

$$2 = a(4)(-1)$$

$$\frac{2}{-4} = \frac{a(-4)}{-4}$$

$$-\frac{1}{2} = a \rightarrow y = -\frac{1}{2}(x + 1)(x - 4)$$

- 22) **BIOLOGY** The function  $y = -0.03(x - 14)^2 + 6$  models the jump of a red kangaroo where  $x$  is the horizontal distance (in feet) and  $y$  is the corresponding height (in feet). What is the kangaroo's maximum height? How long is the kangaroo's jump?



Max height @ (14, 6)  
 Jump length = 28.