

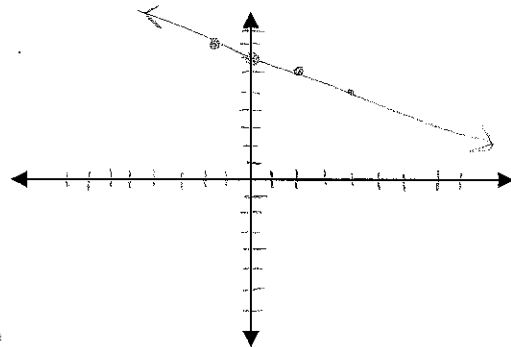
1) Write the linear function that has the indicated function values. Sketch the graph:  
 $f(-10) = 12$ ,  $f(16) = -1$

$$m = \frac{12 - (-1)}{-10 - 16} = \frac{13}{-26} = -\frac{1}{2}$$

$$-1 = -\frac{1}{2}(16) + b$$

$$-1 = -8 + b \quad f(x) = -\frac{1}{2}x + 7$$

$$7 = b$$



2) Evaluate the function for the given values:  $k(x) = \left\lfloor \frac{1}{2}x + 6 \right\rfloor$

a)  $k(5) = \left\lfloor \frac{5}{2} + 6 \right\rfloor = \left\lfloor 2.5 + 6 \right\rfloor = \left\lfloor 8.5 \right\rfloor = 8$

b)  $k(-6.1) = \left\lfloor \frac{-6.1}{2} + 6 \right\rfloor = \left\lfloor -3.05 + 6 \right\rfloor = \left\lfloor 2.95 \right\rfloor = 2$

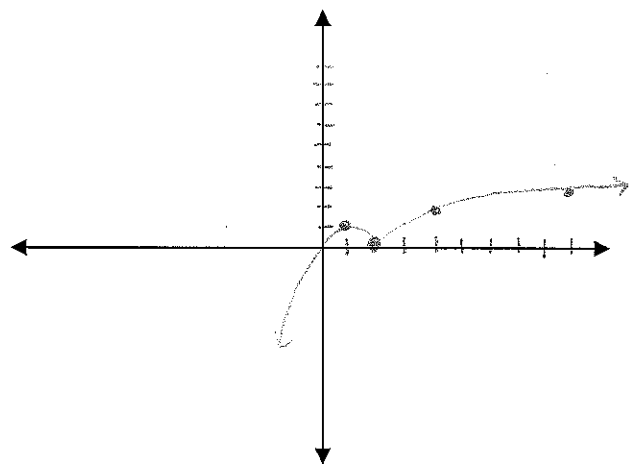
3) Sketch the graph:  $f(x) = \begin{cases} 1 - (x-1)^2, & x \leq 2 \\ \sqrt{x}, & x > 2 \end{cases}$

$$f(1) = 1 - (1-1)^2 = 1$$

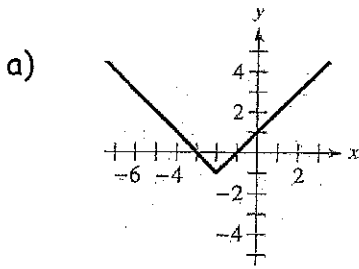
$$f(2) = 1 - (2-1)^2 = 0$$

$$f(4) = 2$$

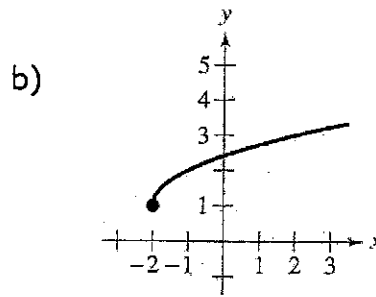
$$f(9) = 3$$



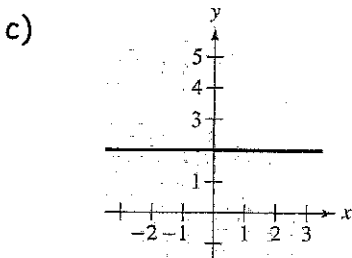
4) Write the equation of each function:



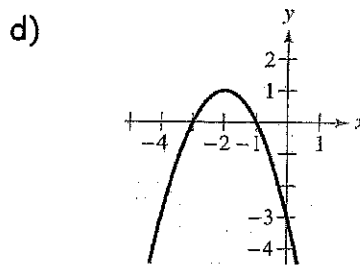
equation:  $f(x) = |x + 2| - 1$



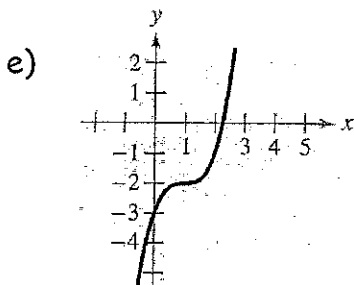
equation:  $f(x) = \sqrt{x + 2} + 1$



equation:  $f(x) = 2$



equation:  $f(x) = -(x + 2)^2 + 1$



equation:  $f(x) = (x - 1)^3 - 2$

5) List the parent function (functions memorized for 1.5 Notes), then describe the transformation from a parent function to the function you see.

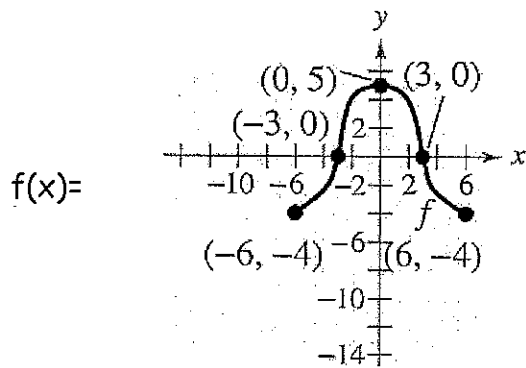
a)  $f(x) = -(x + 10)^2 + 5$       parent function:  $f(x) = x^2$

change:  $\leftarrow 10$ , ref. over  $x$ -axis,  $\uparrow 5$

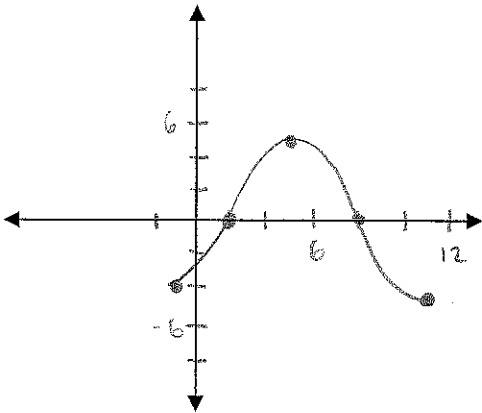
b)  $f(x) = \sqrt{3x} + 1$       parent function:  $f(x) = \sqrt{x}$

change: horizontal shrink,  $\uparrow 1$

6) Use the graph of  $f$  to (a) sketch each graph, and (b) describe the transformation in WORDS.

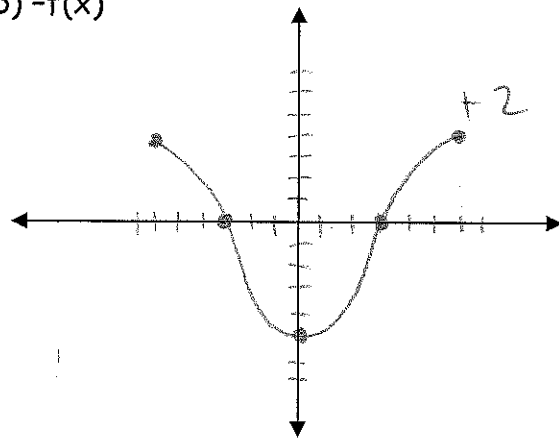


a)  $f(x - 5)$



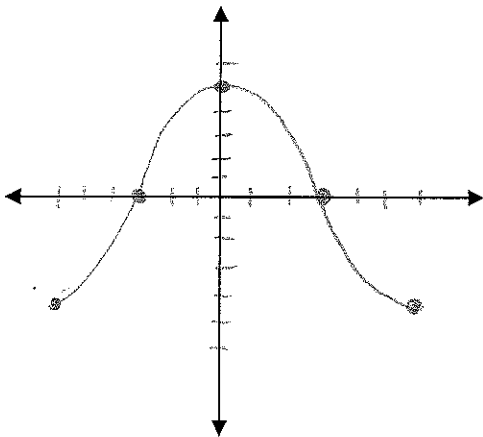
change: → 5

b)  $-f(x)$



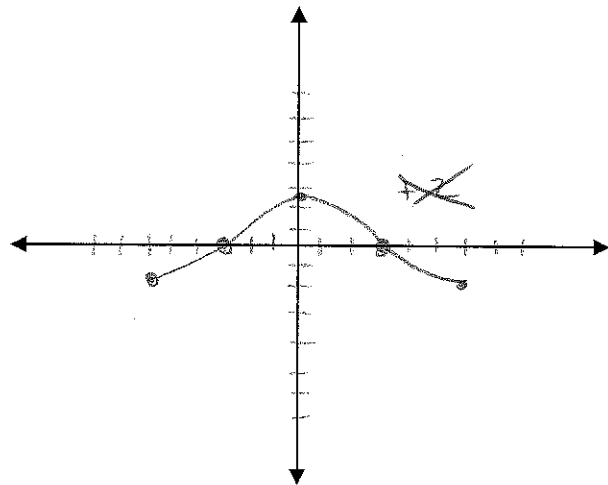
change: ref. over x-axis + 2

c)  $f(-x)$



change: ref. over y-axis

d)  $\frac{1}{2} f(x)$



change: vert. shrink x

