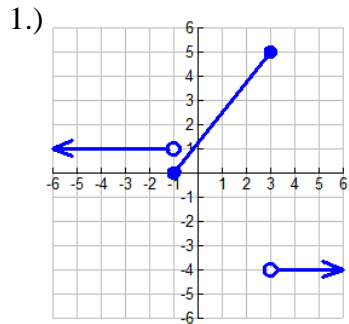
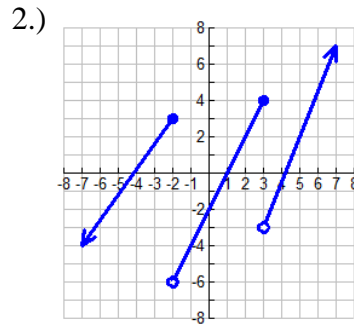


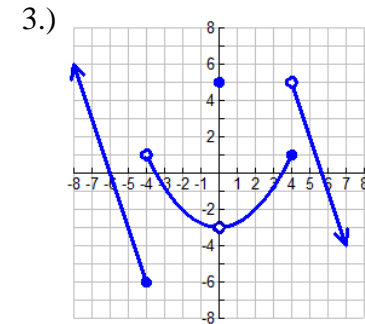
**I. Evaluate each piecewise function either using the given graph or given function. Show work where it specifies and graph #'s 4 - 6.**



x	f(x)
-4	
-1	
0.5	
3	
5	



x	f(x)
-4	
-2	
0	
2	
3	
5	



x	f(x)
-6	
-4	
0	
2	
4	
7	

4.)  $f(x) = \begin{cases} 3x+5 & \text{if } x < 0 \\ 4x-3 & \text{if } x \geq 0 \end{cases}$

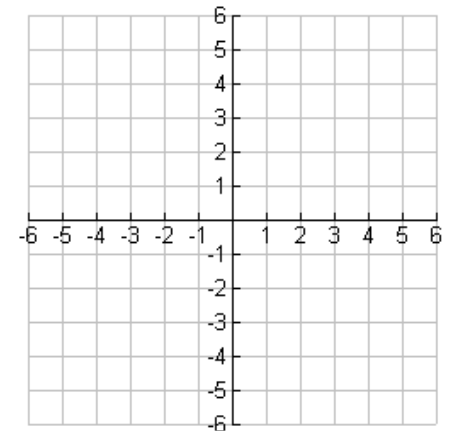
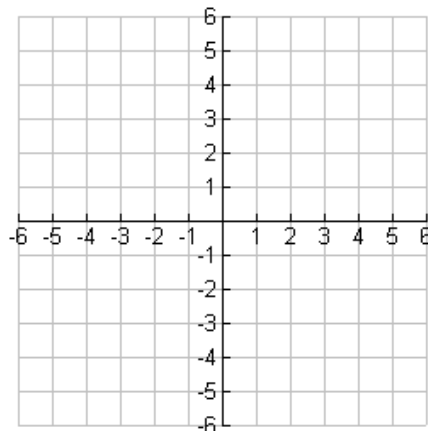
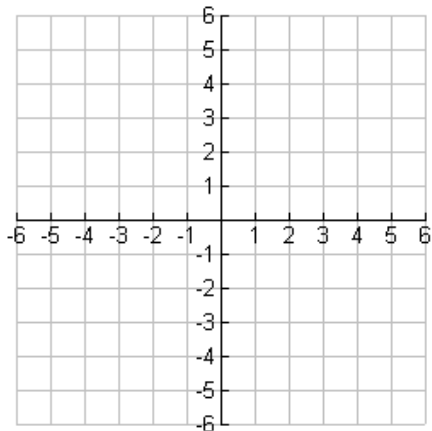
x	Work to find f(x) or y	Pt (x,y)
-4		
-1		
0		
3		

5.)  $f(x) = \begin{cases} x^2 + 2x - 3 & \text{if } x \neq 2 \\ -4 & \text{if } x = 2 \end{cases}$

x	Work to find f(x) or y	Pt (x,y)
-2		
1		
2		
-5		

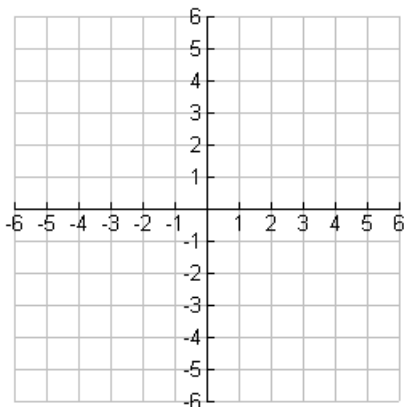
6.)  $f(x) = \begin{cases} x^2 + 2x & \text{if } x < 1 \\ 2|x-3| & \text{if } 1 \leq x < 3 \\ 2-x & \text{if } x \geq 3 \end{cases}$

x	Work to find f(x) or y	Pt (x,y)
2		
-3		
3		
-5		

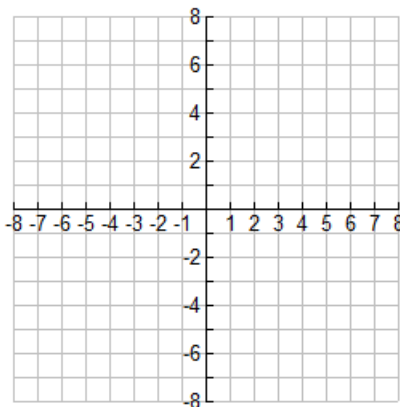


- II. For each of the following: a.) Make a table of values (show all work) on separate sheet of paper.  
b.) Graph each function based on your table of values

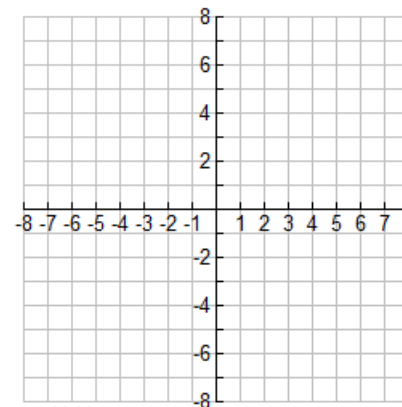
$$7.) f(x) = \begin{cases} \frac{1}{2}x - 3 & \text{if } x < -2 \\ -2 & \text{if } x \geq -2 \end{cases}$$



$$8.) f(x) = \begin{cases} 1 - 2x & \text{if } x \leq 1 \\ 2x + 1 & \text{if } x > 1 \end{cases}$$



$$9.) f(x) = \begin{cases} 2 & \text{if } x < -2 \\ 4 - x^2 & \text{if } -2 \leq x < 1 \\ 2x - 5 & \text{if } x \geq 1 \end{cases}$$



- III. Complete both critical thinking problems below.

10.) The function below models the average number of mi (in thousands) driven per car in the United States, per year,  $x$  years after 1940.

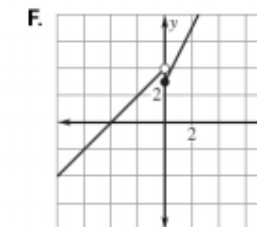
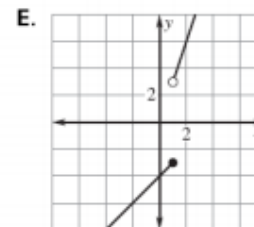
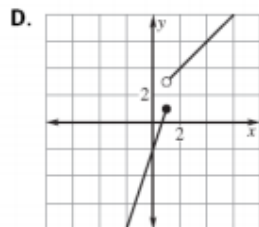
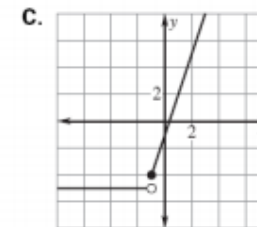
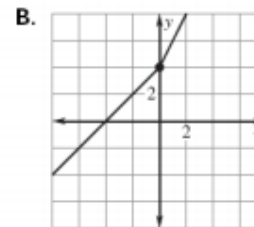
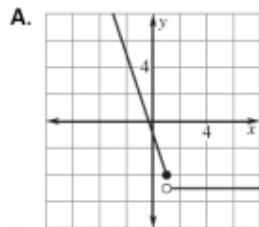
$$f(x) = \begin{cases} 0.0005x^2 + 0.025x + 8.8 & \text{if } 0 \leq x < 30 \\ 0.0202x^2 - 1.58x + 39.2 & \text{if } x \geq 30 \end{cases}$$

Find and interpret:

a.)  $f(15)$

b.) for year 2005

- IV. For #'s 11 – 14, match the graphs to the correct piecewise function.



$$f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$$

$$f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$$

$$f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$$

$$f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$$