

I. Evaluate each piecewise function using the given function. Show work in the specific provided space!

$$1.) f(x) = \begin{cases} 3x+5 & \text{if } x < 0 \\ 4x-3 & \text{if } x \geq 0 \end{cases}$$

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

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

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

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

x	Work to find f(x) or y	Pt (x,y)
-5		
4		
-3		
-2		

$$4.) f(x) = \begin{cases} 3-4x & \text{if } x \leq 0 \\ 3x+2 & \text{if } 0 < x \leq 2 \\ 2|x-2| & \text{if } x > 2 \end{cases}$$

$$5.) f(x) = \begin{cases} x+2 & \text{if } x < -1 \\ 3(1-2x)^2 & \text{if } -1 < x < 3 \\ 3-x & \text{if } x \geq 3 \end{cases}$$

$$6.) f(x) = \begin{cases} 4-2x & \text{if } -1 \leq x \leq 1 \cup x \neq 0 \\ -1 & \text{if } x = 0 \\ \sqrt{2x+4} & \text{if } x < -1 \cup x > 1 \end{cases}$$

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

x	Work to find f(x) or y	Pt (x,y)
0		
-3		
3		
2		

x	Work to find f(x) or y	Pt (x,y)
0		
-3		
2		
1		

II. Complete each problem below. Show work!

7.) In a certain country, income tax is assessed according to the following function:

$$f(x) = \begin{cases} 0 & \text{if } 0 \leq x \leq 10,000 \\ 0.08x & \text{if } 10,000 < x \leq 20,000 \\ 1600 + 0.15x & \text{if } x > 20,000 \end{cases}$$

Find: b.) T (12,000) c.) T (25,000)

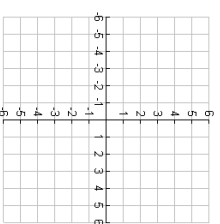
8.) An eccentric billionaire wants to help some local students with their finances. A function is created based on their heights:

$$f(x) = \begin{cases} 0.04x^3 + 50 & \text{if } x < 65'' \text{tall} \\ 2.25x^2 - 10 & \text{if } x \geq 65'' \text{tall} \end{cases}$$

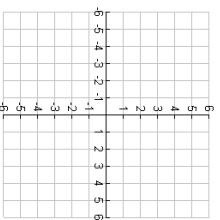
Kenny George, who is 7'8" tall is possibly the tallest player in the history of college basketball. How much money would he receive?

**III. Graph each piecewise function ACCURATELY.**

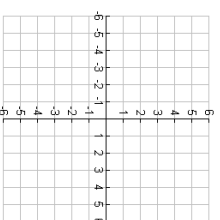
$$9.) f(x) = \begin{cases} \frac{1}{2}x-3 & \text{if } x \leq -2 \\ -2 & \text{if } x > -2 \end{cases}$$



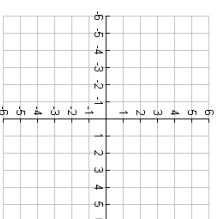
$$10.) f(x) = \begin{cases} x^2 + 4x + 1 & \text{if } x < -1 \\ x + 3 & \text{if } x \geq -1 \end{cases}$$



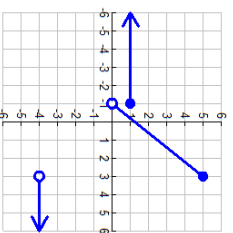
$$11.) f(x) = \begin{cases} 2 & \text{if } x < -3 \\ 3-x & \text{if } -3 \leq x < 2 \\ 2x-5 & \text{if } x \geq 2 \end{cases}$$



$$12.) f(x) = \begin{cases} 3\sqrt{-x-2}-4 & \text{if } x < -2 \\ 1 & \text{if } -2 \leq x \leq 1 \\ 2|x-2|+2 & \text{if } x > 1 \end{cases}$$

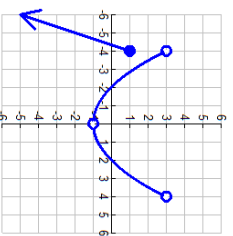
**IV. Determine the domain and range of each given piecewise graph in interval notation.**

Problem # 13



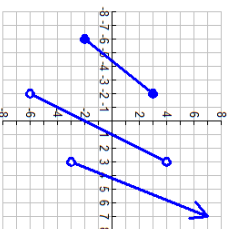
D: _____
R: _____

Problem # 14



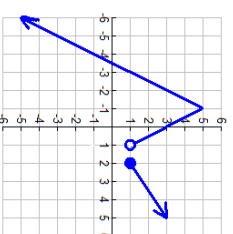
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Problem # 15



D: _____
R: _____

Problem # 16



D: _____
R: _____