Algebra 2 Honors **Name**_____
Notes: 6.3 **Date**_____**Block**_____

***Piecewise Function*:**

I. Evaluating Piecewise Functions

Evaluate the function at the indicated value.

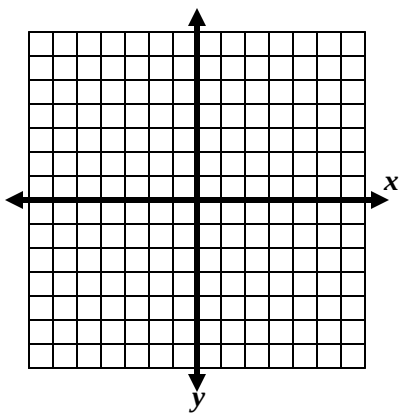
1) $f(x)=\begin{cases}3x+2, & x\le 3\\ x-1, & x>3\end{cases}$ $f(0)=$ $f(2)=$ $f(20)=$

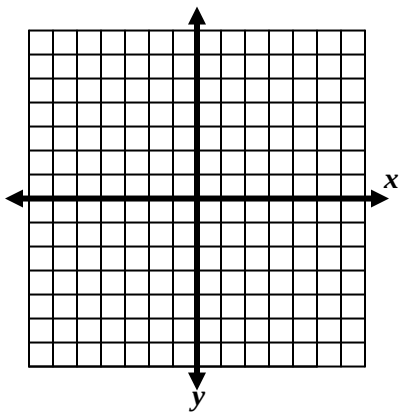
2) $f(x)=\begin{cases}x-7, & x<1\\ 3x-5, & x\ge 1\end{cases}$ $f(\text{-}1)=$ $f(1)=$ $f(0)=$

II. Graphing Piecewise Functions

Ex. $f(x)=\begin{cases}-x+1, & x\le 3\\ \frac{2}{3}x+1, & x>3\end{cases}$

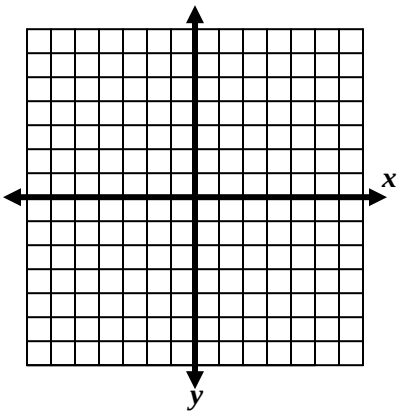
Ex. #2 $f(x)=\begin{cases}-x+5, & x<1\\ 2x, & x\ge 1\end{cases}$

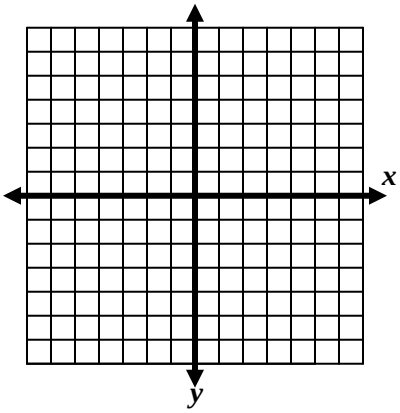




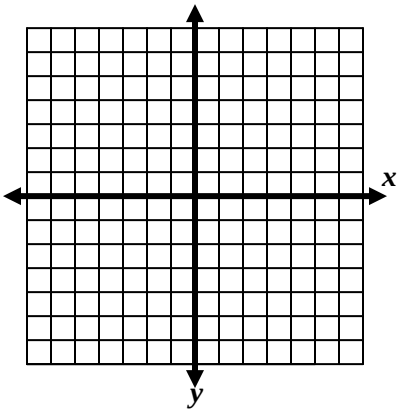
Ex #3 $f(x)=\begin{cases} x^2-3, & x<0 \\ \frac{1}{2}x-3, & 0\le x<4 \\ (x-4)^2-1, & x\ge 4 \end{cases}$

Ex. #4 $f(x)=\begin{cases} -x+5, & x<1 \\ 2\sqrt{x-1}, & 1\le x<5 \\ (x-3)^2, & x\ge 5 \end{cases}$





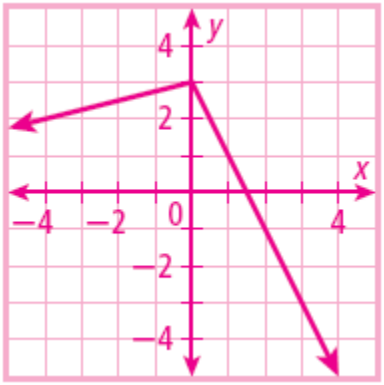
Ex. #5 $f(x)=\begin{cases} 3, & -1\le x<2 \\ 5, & 2\le x<4 \\ 8, & 4\le x<6 \end{cases}$



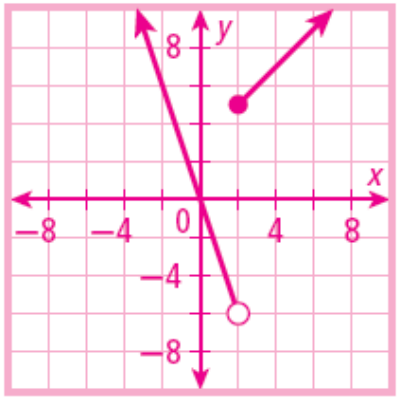
III. Writing Piecewise Functions

Write a piecewise function for each graph.

Ex. #6

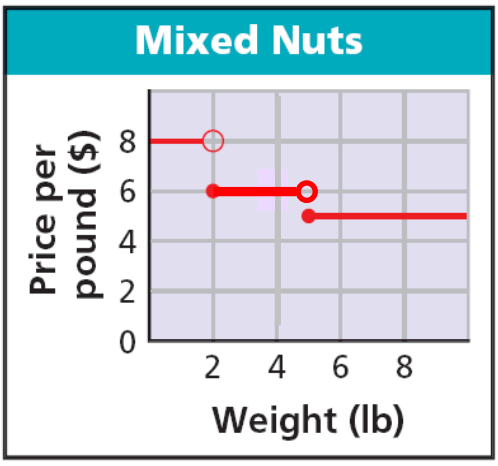


Ex. #7



IV. Applications

Ex. #8 Create a table and a verbal description to represent the graph.



Ex. #9

You have a summer job that pays time and a half for overtime (working more than 40 hours). After that, you earn 1.5 times your hourly rate of $7.00/hr. Write and graph a piecewise function that gives your weekly pay, *P*, in terms of the number hours you work *h*. How much will you make if you work 45 hours?

Ex. #10

You are employed by a company in which commission rates are based on how much you sell. If you sell up to $100,000 of merchandise in a month, you earn 5% of sales as a commission. If you sell over $100,000, you earn 8% commission on your sales. Write a piecewise function that gives the amount you earn, *C*, in commission in a given month for *x* dollars in sales. How much will you earn if you sell $165,000 of merchandise?