M2 Worksheet ~Piecewise Functions

Evaluate the function for the given value of x.

$$f(x)=\begin{cases}3, & x\le 0\\ 2, & x>0\end{cases}\quad \text{if}$$

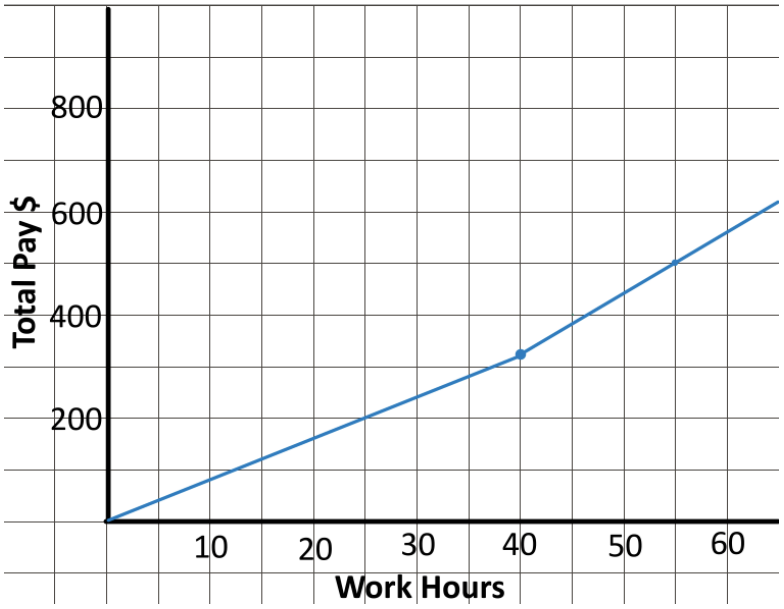
$$g(x)=\begin{cases}x+5, & x\le 3\\ 2x-1, & x>3\end{cases}\quad \text{if}$$

$$h(x)=\begin{cases}\frac{1}{2}x-4, & x\le -2\\ 3-2x, & x>-2\end{cases}\quad \text{if}$$

1. f(2) =
2. f(-4) =
3. f(0) =
4. f(1/2) =
5. g(5) =
6. g(-2) =
7. g(3) =
8. g(8) =
9. h(-2) =
10. h(0) =
11. h(4) =
12. h(21) =

You have a summer job that pays time and a half for overtime. That means, if you work more than 40 hours a week, your hourly wage is 1.5 times your normal rate of $7 per hour. The following piecewise function shows the total pay, *P*, as a function of the number of hours worked, *x*.

$$P=\begin{cases}8x \text{ if } 0 < x \le 40\\ 12(x-40)+320 \text{ if } x > 40\end{cases}$$



Use the function rule above to answer the following. Then compare it to the graph.

13. How much will you make if you worked 32 hours?

14. How much will you make if you worked 40 hours?

15. How much will you make if you worked 45 hours?

16. If you make $500 how many hours did you work?

Carefully graph each of the following. Identify whether or not he graph is a function. Then, evaluate the graph at any specified domain value.

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

Function? Yes or no

f(3) =
f(-4) =
f(-2) =

18. $f(x)=\begin{cases}2x+1 & x\ge 1\\ \frac{1}{2}x-3 & x<1\end{cases}$

Function? Yes or no

f(-2) =
f(6) =
f(1) =