Quiz 3

Name: _____

The two questions are not related.

1. Write the function $g(x) = |2x - 3|$ as a multipart function.

$$g(x) = \begin{cases} 2x-3, & 2x-3 \geq 0 \\ -2x+3, & 2x-3<0 \end{cases} = \begin{cases} 2x-3, & x \geq \frac{3}{2} \\ -2x+3, & x < \frac{3}{2} \end{cases}$$

2. You are given a function $f(x)$ with **domain** $1 \leq x \leq 5$ and **range** $-1 \leq y \leq 4$

   (a) Find the domain of $f(-2x + 4)$.

$$1 \leq -2x+4 \leq 5 \Rightarrow$$
$$\Rightarrow -3 \leq -2x \leq 1$$
$$\Rightarrow \frac{3}{2} \geq x \geq -\frac{1}{2}$$

   (b) Find the range of $f(-2x + 4)$.

range doesn't change!

$$-1 \leq y \leq 4$$

   (c) Find the range of $3f(x) + 2$

$$-1 \leq f(x) \leq 4$$
$$\Rightarrow -3 \leq 3f(x) \leq 12$$
$$\Rightarrow -1 \leq 3f(x)+2 \leq 14$$