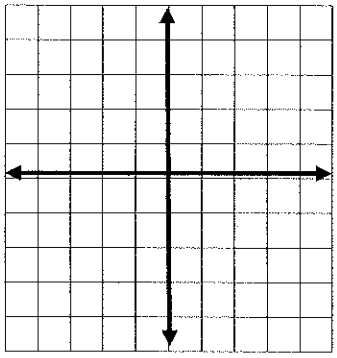
Greatest Integer Function Worksheet Name_____

Evaluate the following:

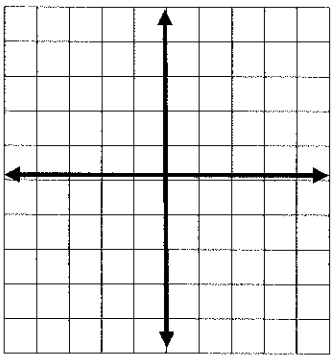
1. $\lfloor 7.1 \rfloor$ 2. $\lfloor 1.8 \rfloor$ 3. $\lfloor \pi \rfloor$ 4. $\lfloor -6.8 \rfloor$ 5. $\lfloor -2.1 \rfloor$ 6. $\lfloor 0 \rfloor$

Graph the translation in 7 and 8. Then describe the translations and how they differ.

7. $f(x) = \lfloor x \rfloor + 2$

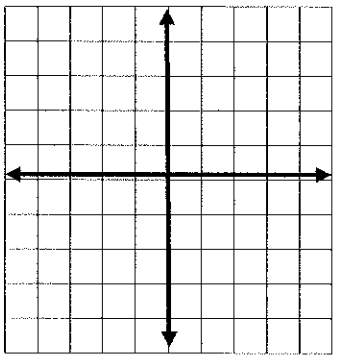


8. $g(x) = \lfloor x + 2 \rfloor$

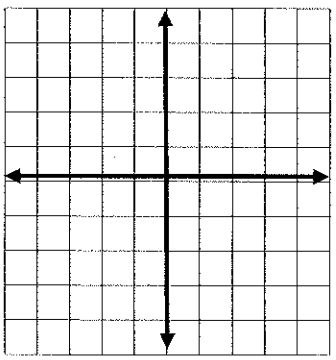


Graph the dilations in 9 and 10. Then describe the dilations and they differ.

9. $f(x) = 2\lfloor x \rfloor$

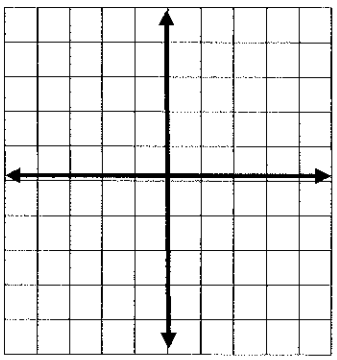


10. $g(x) = \lfloor 2x \rfloor$

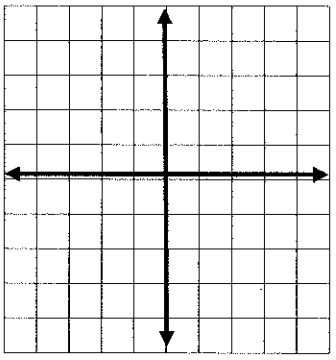


Graph the reflections in 11 and 12. Then describe the reflection and they differ

11. $f(x) = -[[x]]$



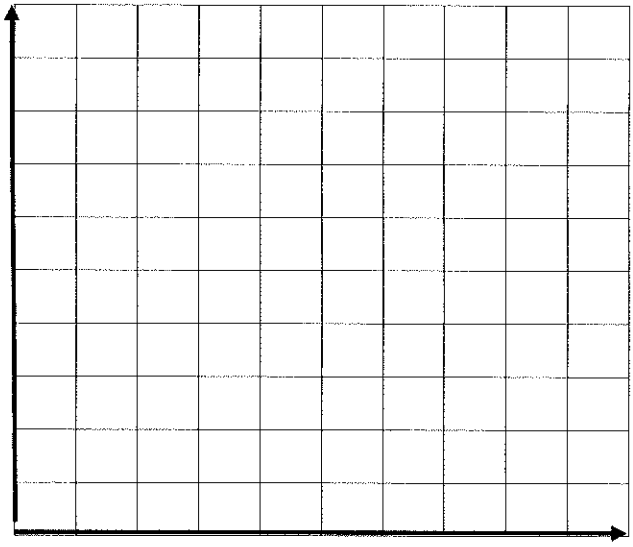
12. $g(x) = [[-x]]$



Real World Application of Step Functions:
Prior to September, 2000, taxi fares from Washington DC to Maryland were as follows:
$2.00 for up to and including the first ½ mile, + $0.50 for each additional ½ mile increment.

Describe the independent and dependent variables and explain your choices.

Graph the fares for the first 2 miles: *(Make sure to label the axes.)*



Explain why this is a step function.

How is it different from the greatest integer parent function f(x) = $\lfloor x \rfloor$

Write the function that is modeled by this graph.

Preview for tomorrow: Write the piecewise function for 0 to 2 miles.

$$f(x) = \begin{cases} \$2.00 & \text{if} \quad \quad < x \leq \\ \$2.50 & \\ \$3.00 & \end{cases}$$