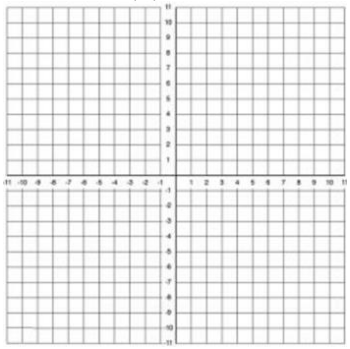
Chapter 1 Review: Standard 1A and 1B

Name_____Hr_____

Graph each function. Compare the graph to the graph of $f(x) = |x|$ by describing the transformations. Identify the domain and range of the function.

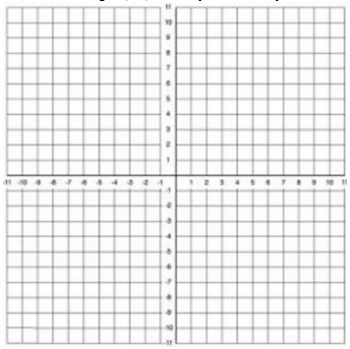
1. $m(x) = |x| + 6$



Transformations:

Domain:
Range:

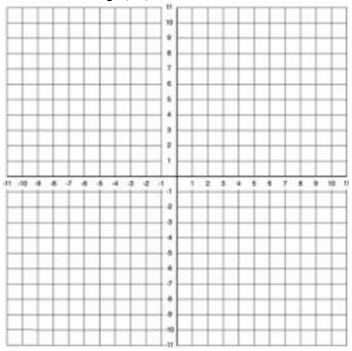
2. $p(x) = |x - 4|$



Transformations:

Domain:
Range:

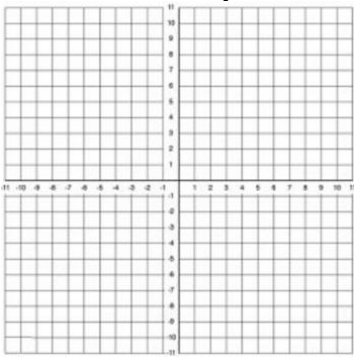
3. $q(x) = 4|x|$



Transformations:

Domain:
Range:

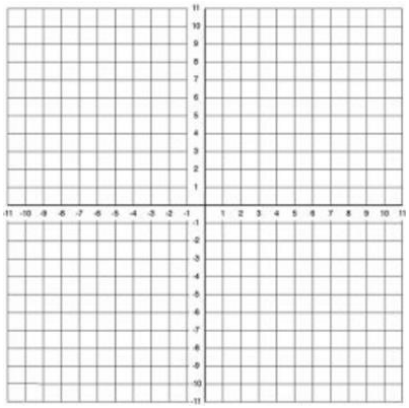
4. $r(x) = -\frac{1}{4}|x|$



Transformations:

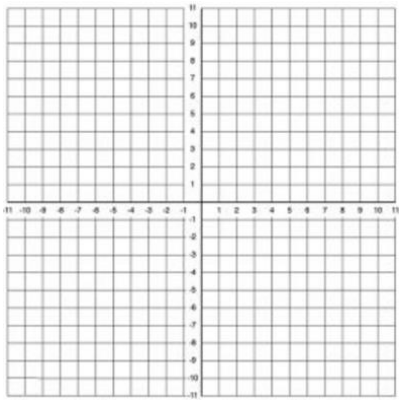
Domain:
Range:

5. Graph $f(x) = |x - 2| + 4$ and $g(x) = 3|x - 2| + 4$. Compare the graph of g and the graph of f.

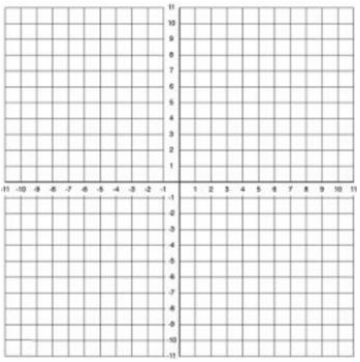


6. Let $g(x) = \frac{1}{3}|x - 1| - 2$. Describe the transformations from the parent function $f(x) = |x|$ to $g(x)$. Then use those transformations to graph $g(x)$.

Transformations:



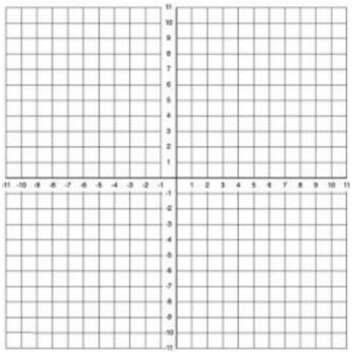
7. Graph $y = \begin{cases} \frac{3}{2}x + 3, & \text{if } x \leq 0 \\ -2x, & \text{if } x > 0 \end{cases}$



8. Evaluate the function on the left at the following values.
   a. $f(0)$
   b. $f(5)$

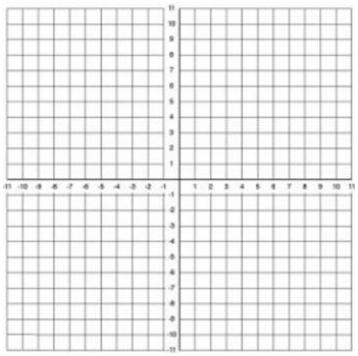
For each of the following functions, graph each and describe the domain and range.

9. $y = \begin{cases} x + 6, & \text{if } x \leq 0 \\ -3x, & \text{if } x > 0 \end{cases}$



Domain:
Range:

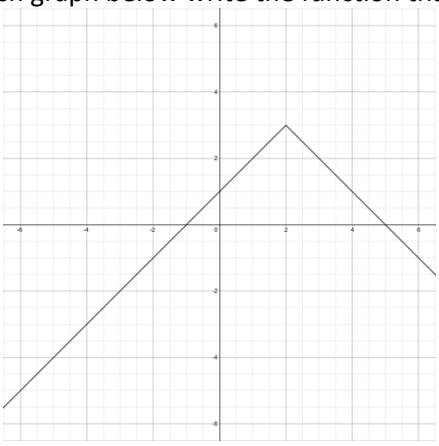
10. $y = \begin{cases} 4x + 2, if\ x < -1 \\ 2x - 6, if\ x \geq -1 \end{cases}$



Domain:
Range:

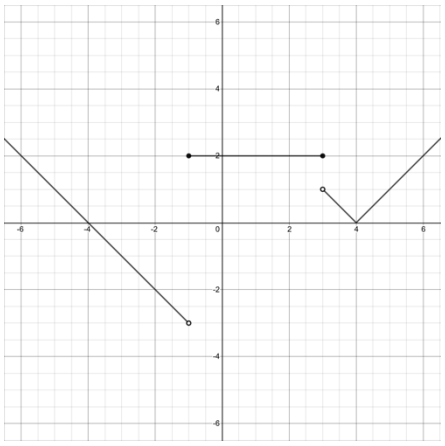
Given each graph below write the function that describes the graph.

11.



Please note the scale on both axes is "2"

12.



Please note the scale on both axes is "2"

For each set of criteria, write the function that matches that criteria.

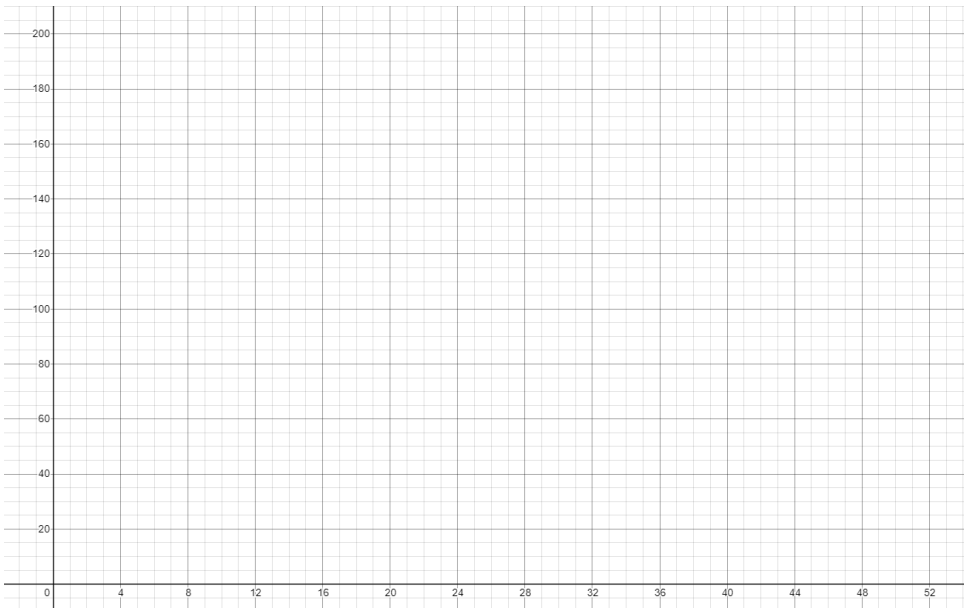
13. An absolute value function that has been reflected over the x-axis, shifted 4 units left, and shifted 2 units up.

$f(x) =$ _____

14. An absolute value function that has a vertical shrink of ¾, has been shifted 3 units right, and shifted 1 unit up.

$f(x) =$ _____

15. You are organizing a school fair and rent a popcorn machine for 2 days. The rental company charges $65 For the first day, and $5 per hour for every hour after the first 24 hours. Write and graph a piecewise function that represents the cost of renting the popcorn machine for 2 days.



The x-axes has a scale of 4 and the y-axis has a scale of 20

$$f(x)=\begin{cases} \\ \\ \\ \end{cases}$$

Simplify each of the following expressions (Positive exponents only):

16. $y^3 \cdot y^{-5}$

17. $\frac{x^4}{x^7}$

18. $(x^0y^2)^3$

19. $(\frac{2x^2}{5y^4})^{-2}$

Evaluate each of the following expressions:

20. $\sqrt[3]{8}$

21. $\sqrt[5]{-243}$

22. $625^{3/4}$

23. $(-25)^{1/2}$

Simplify the following expressions and write your answers with positive rational exponents:

24. $4^{\frac{1}{3}} \cdot 4^{\frac{2}{3}}$

25. $7x^{-4}z^{-\frac{1}{2}} \cdot 2x^2z^{\frac{1}{2}}$

26. $\left(2a^{-\frac{2}{3}}\right)^3$

27. $\left(\frac{8x^{\frac{1}{2}}}{y^3}\right)^{\frac{2}{3}}$

Simplify the following expressions and write as rational exponents:

28. $z^{\frac{2}{3}}\sqrt{z^5}$

29. $x^{\frac{1}{2}} + x^{-2}\sqrt{x^5}$

30. $y^{\frac{2}{3}} \cdot \sqrt[3]{y^5}$

Write the radical in rational exponent form

31. $\sqrt[4]{7x^3}$

32. $\left(\sqrt[3]{4m}\right)^2$

Write the rational exponent in radical form.

33. $(6y)^{\frac{2}{5}}$

34. $2x^{\frac{5}{4}}$