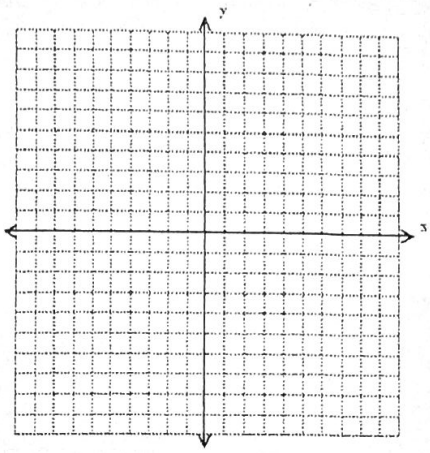
Unit 1 Halfway Review

Name: _____

1. Write the equation of a line in standard form that goes through the points (6, -5) and (-2, 7)

2. Graph the piecewise function and complete the following.

$$f(x) = \begin{cases} 3 + x \text{ if } -3 \leq x < 0 \\ 7 \text{ if } x = 0 \\ x^{\frac{1}{3}} \text{ if } x > 0 \end{cases}$$



Domain:

Range:

Find $f(8)$:

3. A gym offers a variety of exercise classes. Members of the gym can attend up to 5 classes per week with their monthly fee of $35. If they would like to attend more than 5 classes per week, they must pay an additional $3 per class. The gym does not allow members to take more than 10 classes per week. Write the piecewise function that could be used to determine the cost a member would pay to go to the number of classes they'd like to attend.

Identify the parent graph and the transformations.

4. $f(x) = -2\sqrt[3]{-x+5}$

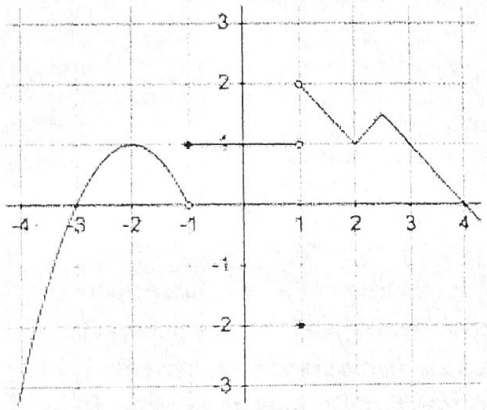
5. $g(x) = |6x| + 7$

6. Write the equation of a quadratic that has been reflected over the y-axis, vertically compressed by 2, shifted left 3, and down 6.

7. Is the function $f(x) = \sqrt[3]{x} + x^2 - x$ even, odd, or neither? Explain how you know.

8. Determine the symmetry of the function $g(x) = \frac{x}{x^2+1}$

9. Using the graph below, find the following:



Domain:

Range:

Increasing:

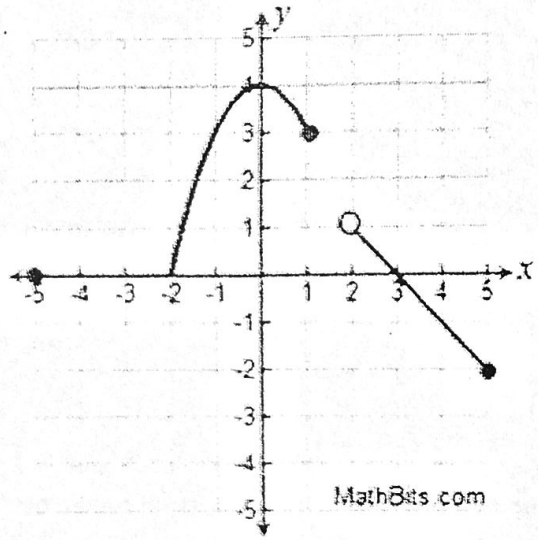
Decreasing:

Max:

Min:

Find the domain for each of the following.

12.



13. $f(x) = \frac{\sqrt{5x-4}}{x+3}$