Name: _____

College Algebra: Review (Test 2)

1. Find all solutions of the following inequality.

$$|3x - 9| + 8 \leq 29$$

2. Find all solutions of the following inequality.

$$2|4x + 7| + 10 < 29$$

3. Find all solutions of the following inequality.

$$2|2x - 1| + 9 > 24$$

4. Find the domain of the following function.

$$f(x) = \frac{7x^3 + x^2 + 4x + 5}{x^2 - 9}$$

5. Find the domain of the following function.

$$f(x) = \sqrt{4x + 7}$$

6. Find the domain of the following function.

$$f(x) = \sqrt{|9x + 5| - 8}$$

7. Evaluate the function

$$f(x) = 5x^3 + 6x + 4$$

at $x = 2$, $x = 0$, $x = -3$, and $x = 1/2$.

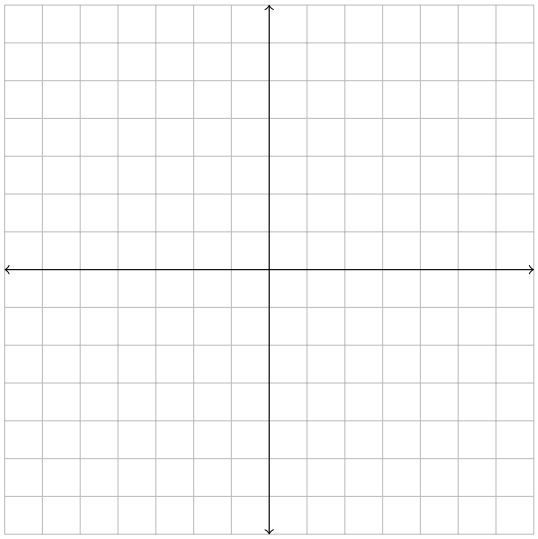
8. Evaluate the function

$$f(x) = \begin{cases} 4x - 5 & \text{if } x \geq 4 \\ \frac{1}{x^2 - 6} & \text{if } x < 4 \end{cases}$$

at $x = 1$, $x = 9$, and $x = -7$.

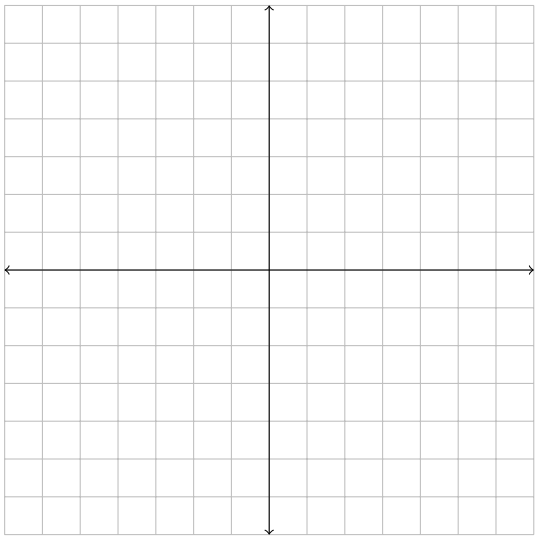
9. Sketch the graph of the following equation in the space provided.

$$(x - 4)^2 + (y - 3)^2 = 1$$



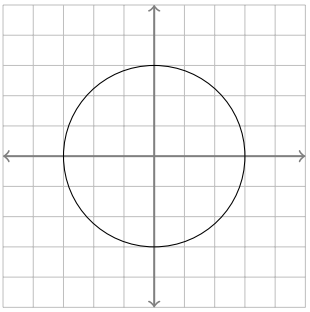
10. Sketch the graph of the following equation in the space provided.

$$\left(\frac{1}{2}(x+2)\right)^2 + (y-3)^2 = 1$$

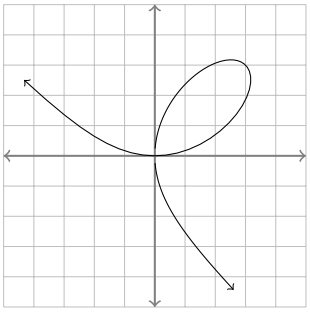


11. Graphically transform the following graph in the space provided.

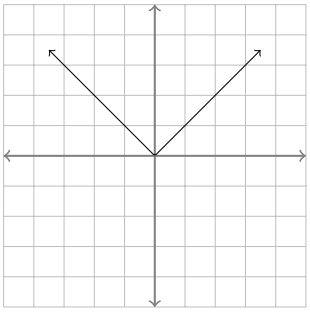
Shift left by 3 unit(s) and shift up by 3 unit(s).



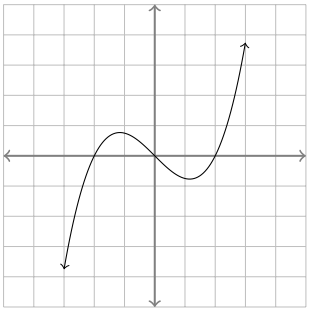
12. Determine whether or not the following graphs are symmetric across the x-axis, across the y-axis, or about the origin.



x-axis: yes/no
y-axis: yes/no
origin: yes/no



x-axis: yes/no
y-axis: yes/no
origin: yes/no



x-axis: yes/no
y-axis: yes/no
origin: yes/no

13. Determine whether or not the following equations are symmetric across the x-axis, across the y-axis, about the origin, or none of the three.

(a) $y^3 - 1 = x^3 - 2$

(b) $y^2 = x^3 - x$

(c) $x^4 + y^4 = 1$