

Name: _____

This assignment is worth 40 points. The topics on this assignment come from sections 2.2 through 4.2. Please follow all of the instructions and show all of your work (when necessary). While you are encouraged to discuss this assignment with others, the work on the following pages should be your own.

Check the appropriate statement regarding your collaboration with others on this assignment:

☐ I did not collaborate with others on this assignment.

☐ I discussed the assignment with tutors.

☐ I discussed the assignment with the following classmates: _____

I agree that the above statement checked is true and that the work on the following pages is my own.

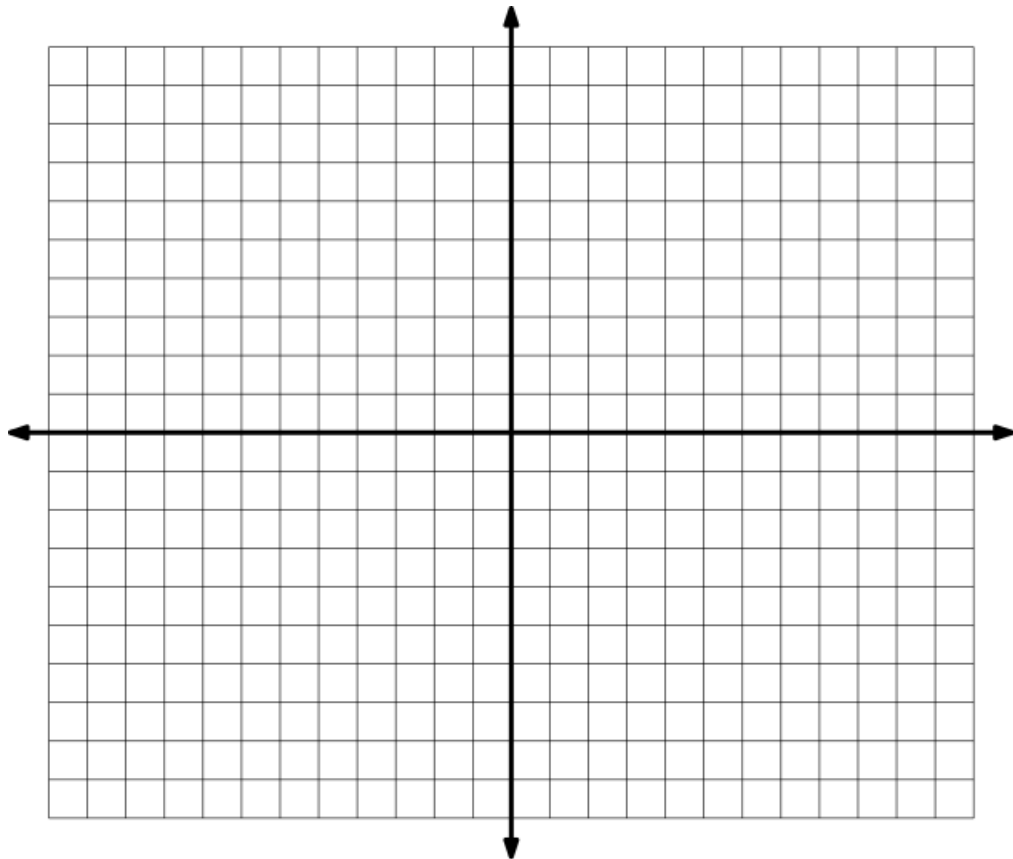
Signature: _____

On each of the following pages you are given an equation and your goal is to sketch its graph!

First determine what type of equation it is (from the list below) and then follow the steps for that type of equation. Keep in mind that your equations may not be in the same order as the list below. Make sure to number and include **all** of the information listed for that type of equation and neatly sketch the graph on the grid provided. Each piece of information is worth 1 point and each graph is worth 2 points.

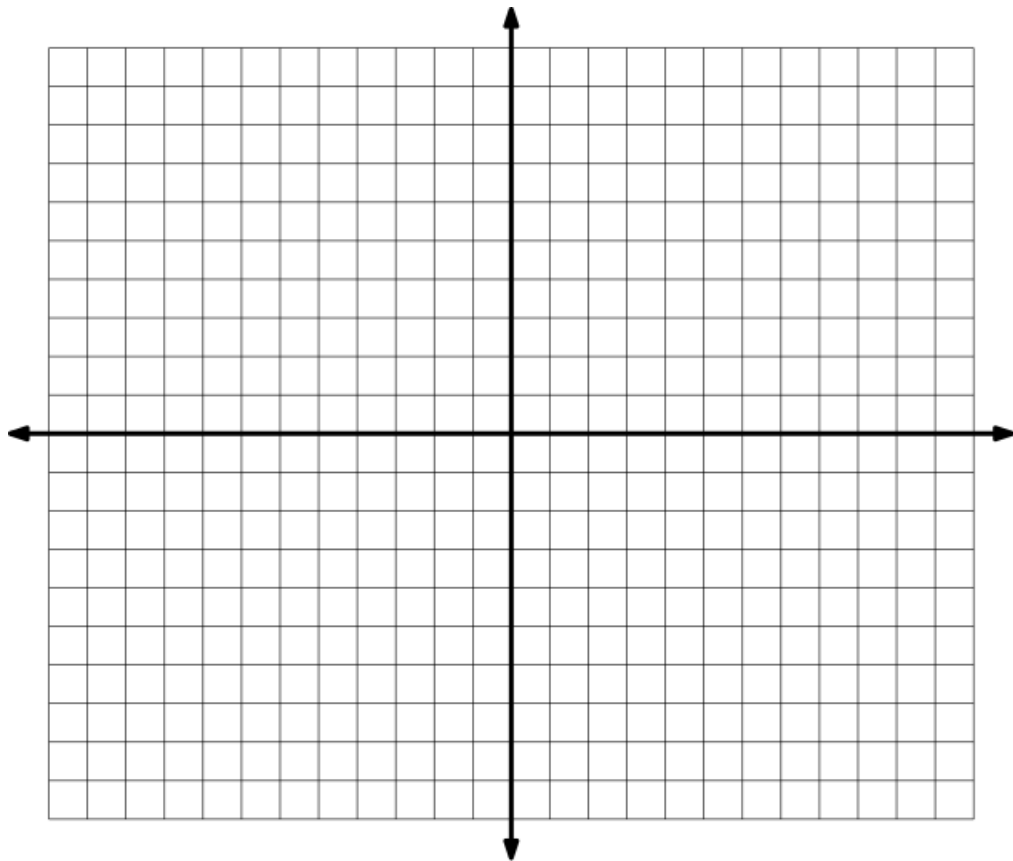
- Circle (3 points for the information + 2 points for the graph)
 1. Write the equation of the circle in standard form.
 2. Identify the center.
 3. Identify the radius.
- Quadratic Function (7 points for the information + 2 points for the graph)
 1. Write the equation in vertex form.
 2. Indicate whether the graph opens up or down.
 3. Determine the vertex.
 4. Determine the axis of symmetry.
 5. Find the x -intercept(s).
 6. Find the y -intercept.
 7. Write the domain and range.
- Piecewise Function (6 points for the information + 2 points for the graph)
 1. Identify the x -intercept(s).
 2. Identify the y -intercept.
 3. Write the domain and range.
 4. Write the intervals where the function is increasing.
 5. Write the intervals where the function is decreasing.
 6. Write the intervals where the function is constant.
- Polynomial Function (3 points for the information + 2 points for the graph)
 1. Determine the end behavior.
 2. Find the y -intercept.
 3. Find the zeros along with their multiplicities.
- Rational Function (5 points for the information + 2 points for the graph)
 1. Write the domain.
 2. Find the x -intercept(s).
 3. Find the y -intercept.
 4. Identify the vertical asymptote(s).
 5. Identify the horizontal asymptote.
- Exponential Function (4 points for the information + 2 points for the graph)
 1. Plug in at least 5 points.
 2. Find the y -intercept.
 3. Write the domain and range.
 4. Identify the horizontal asymptote.

1. $f(x) = x^2 - 8x + 8$ Type of equation: _____



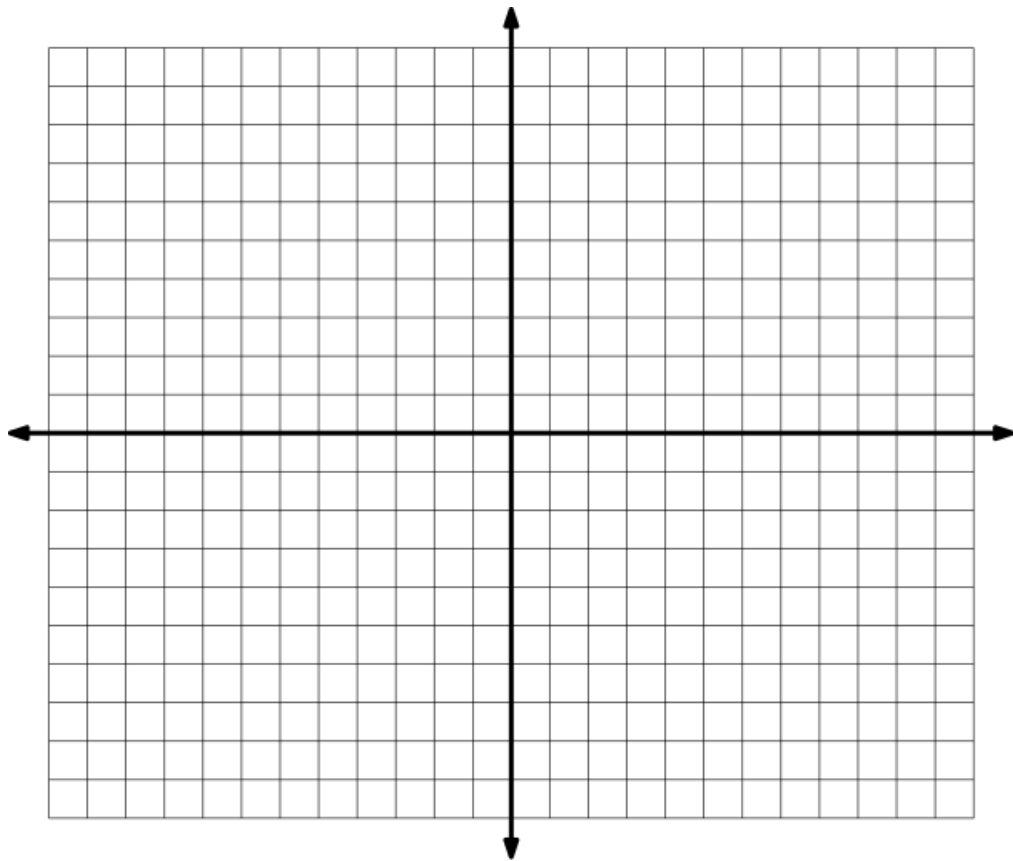
2. $f(x) = \frac{x^2}{x^2 - x - 12}$

Type of equation: _____

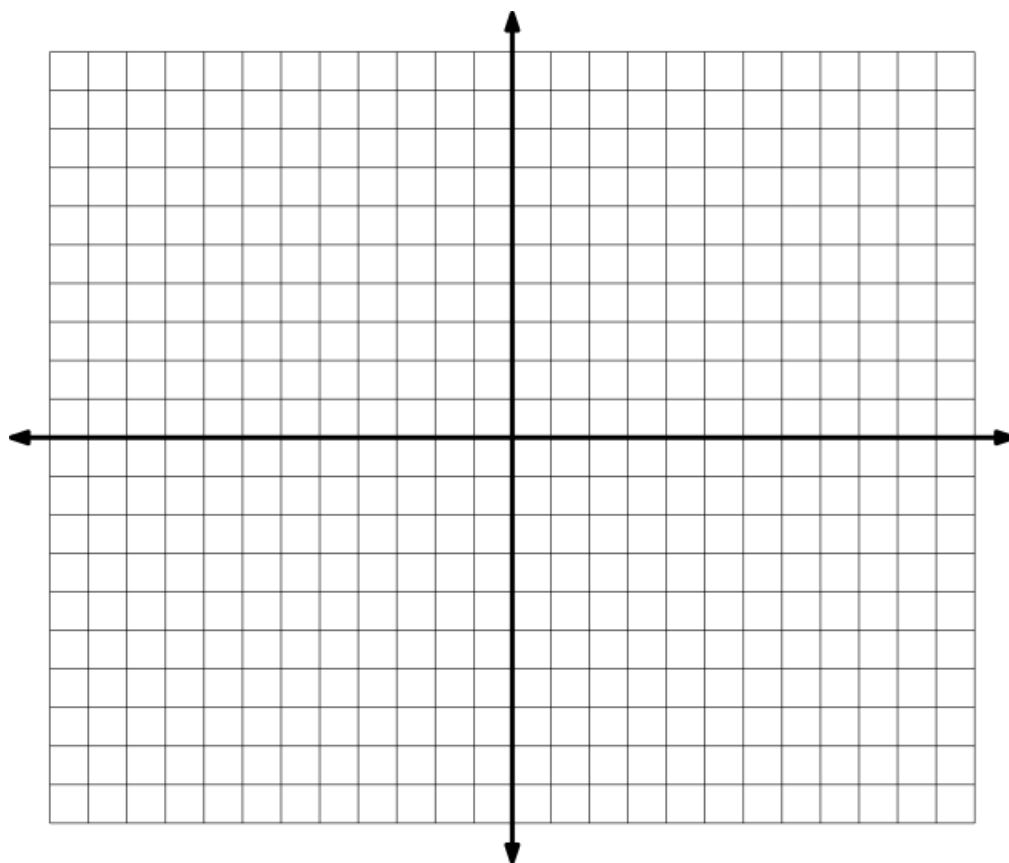


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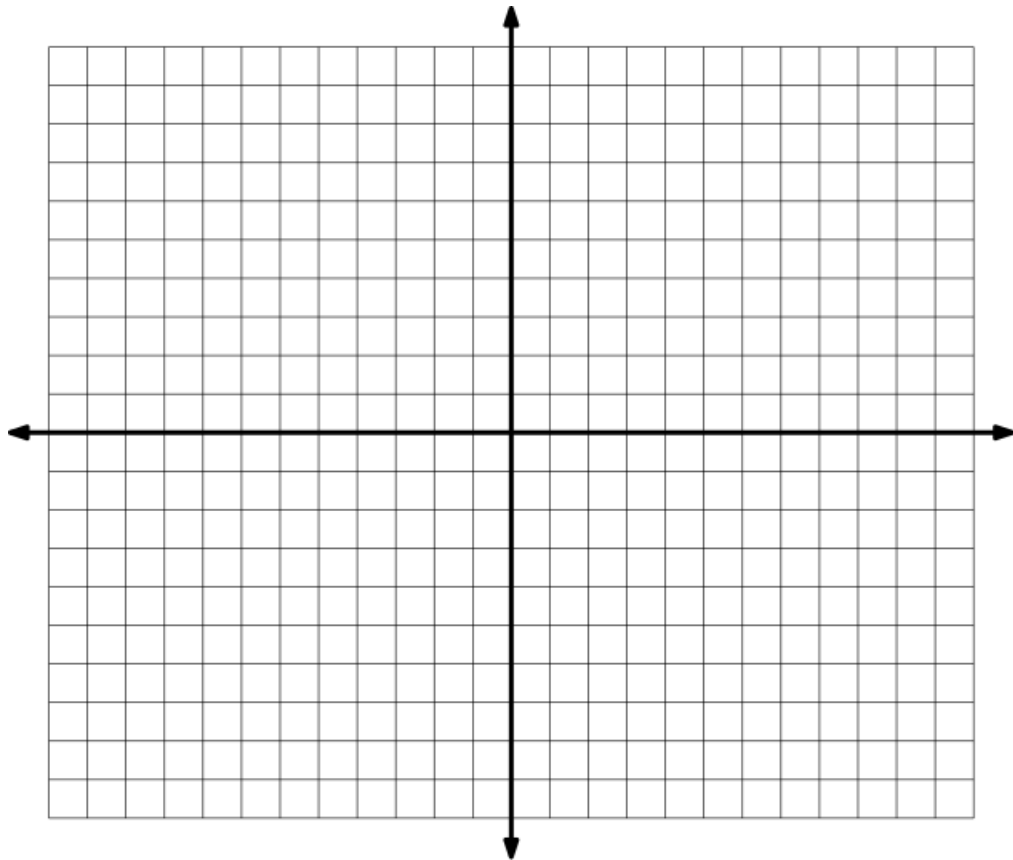
3. $x^2 + y^2 + 10x - 2y + 17 = 0$ Type of equation: _____



4. $f(x) = \left(\frac{1}{3}\right)^x$ Type of equation: _____



5. $f(x) = \begin{cases} 2x + 4 & x < -1 \\ x^2 & -1 \leq x \leq 2 \\ 5 & x > 2 \end{cases}$ Type of equation: _____



6. $f(x) = -\frac{1}{2}(x+1)^2(x-4)(x+3)$ Type of equation: _____

