Intermediate Algebra	Name:
Study Guide 4	Class:
Due Date:	Score:

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. **(4 points)** Solve, graph, then give your final answer in <u>set-builder</u> notation:
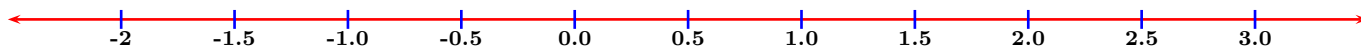
   $-2 \leq -4x - 6 < 2$
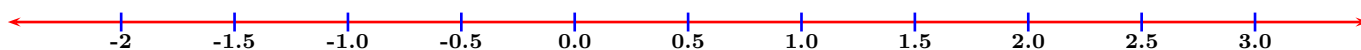
1. _____

2. **(4 points)** Solve, graph, then give your final answer in <u>interval</u> notation:

   $-1 \leq -3x + 5 \leq 5$

2. _____

3. **Consider** $A = \{1, 2, 3, 4, ..., 10\}, B = \{a, b, c, d, ..., x, y, z\}$.

   (a) **(2 points)** Find $A \cup B$.

   (a) _____

   (b) **(2 points)** Find $A \cap B$.

   (b) _____

4. Consider $A = \{3, 8, 9, 12\}, B = \{0, 1, 2, 6\},$ **and** $C = \{5, 7, 8\}$.

    (a) (2 points) Find $A \cup B.$

    (a) _____

    (b) (2 points) Find $A \cap B.$

    (b) _____

    (c) (2 points) Find $A \cap C.$
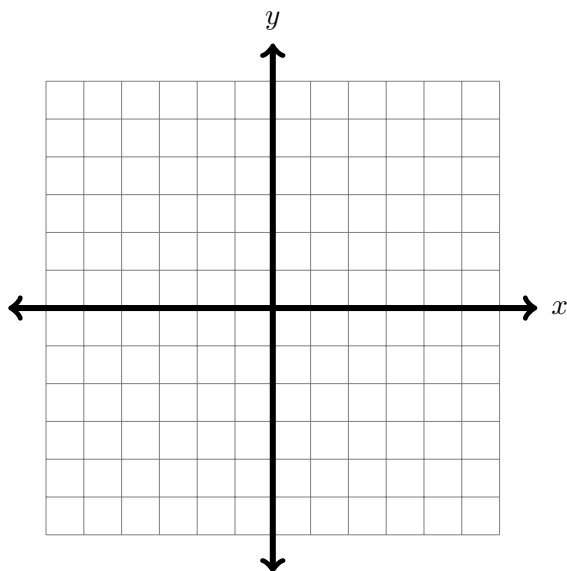
    (c) _____

5. (4 points) Find the domain for the function $f(x) = \dfrac{x}{x^2 - 9}$, **express your answer in interval notation.**
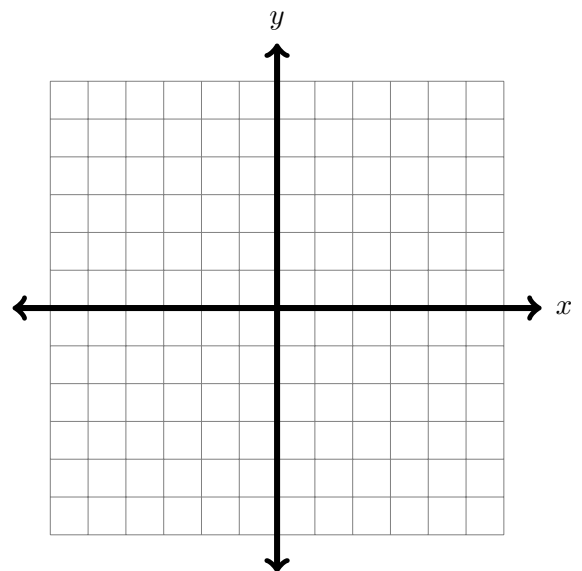
    5. _____

6. (4 points) Graph and shade the solution:
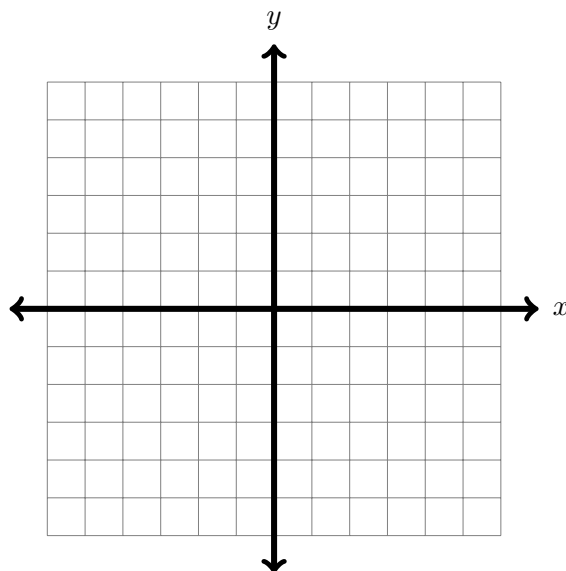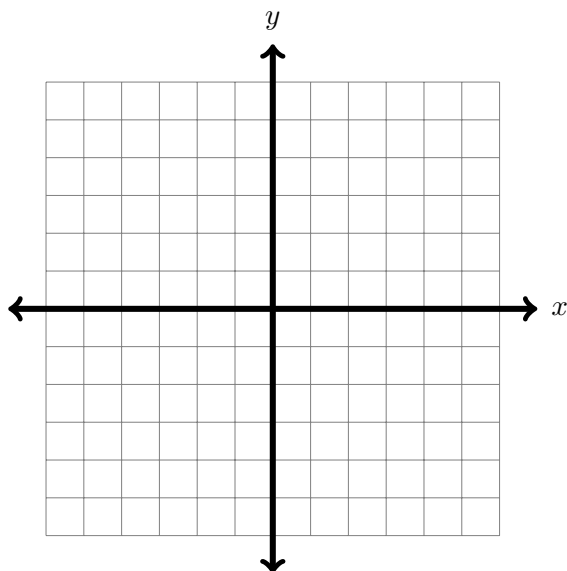
$y < -2$ $x \geq 2$

7. (4 points) Graph and shade the solution:

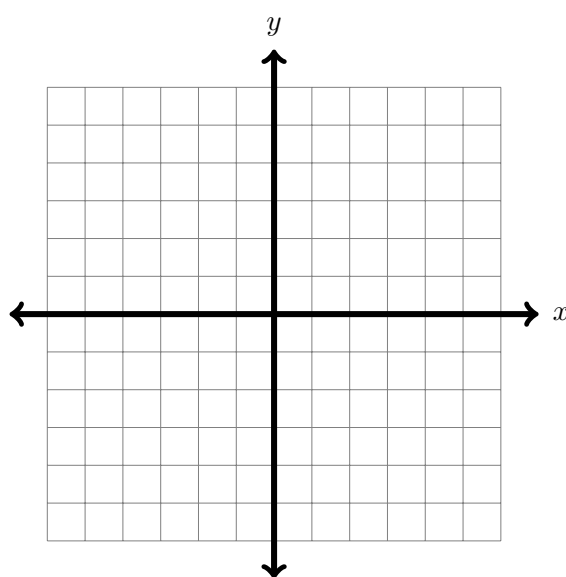$$y < \frac{-3}{4}x + 3 \qquad\qquad\qquad y \geq \frac{4}{3}x - 4$$

8. (6 points) Graph and shade the solution to each of the system of linear inequalities:

$$\begin{cases} y < \dfrac{-2}{3}x + 2 \\ x \geq -1 \end{cases} \qquad\qquad \begin{cases} y \geq -2x + 3 \\ y \leq 1 \end{cases}$$
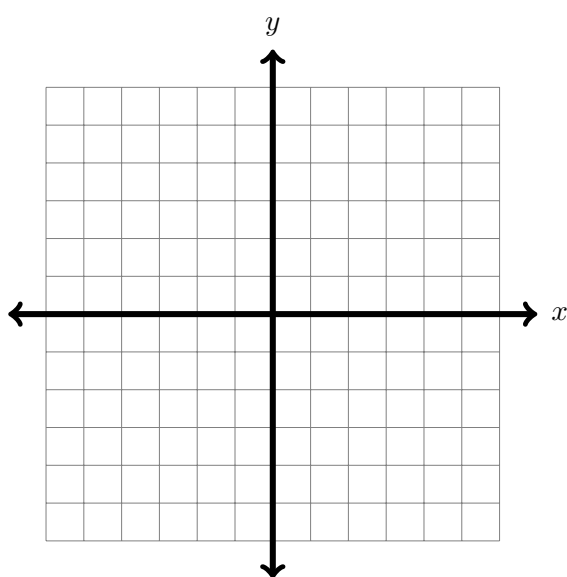
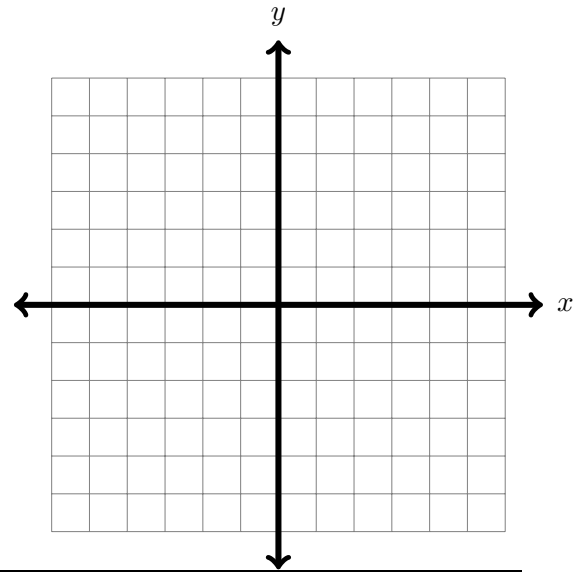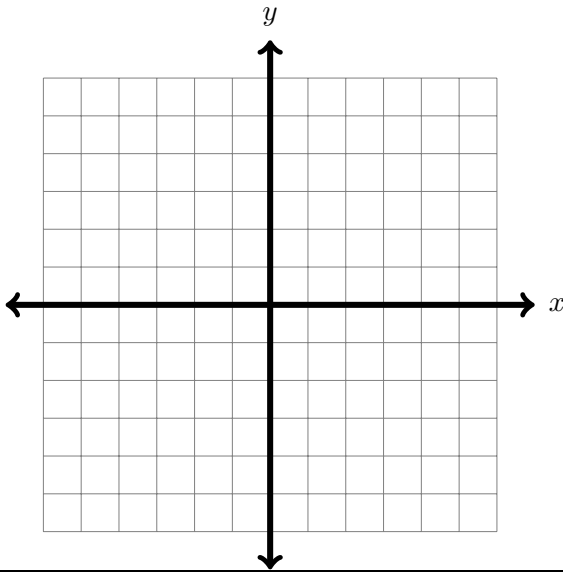9. (8 points) Graph and shade the solution to each of the system of linear inequalities:

$$\begin{cases} y > \frac{2}{3}x - 2 \\ y > \frac{-2}{3}x - 2 \\ y \le 2 \end{cases}$$
$$\begin{cases} y \ge x - 4 \\ y \le 0 \\ x \ge 0 \end{cases}$$

10. **Beginning Algebra Review Problems:**

(a) **(2 points)** Solve for y, and write your final answer in slope–intercept form: $3x - y - 4 \le -2x + 3y + 4$

(a) _____

(b) **(2 points)** Find the equation of a line that contains $(3, -1)$ with zero slope.

(b) _____

(c) **(2 points)** Find the equation of a line that contains $(4, 0)$ with no slope.

(c) _____