Intermediate Algebra	Name:
Study Guide 6	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>interval</u> notation:
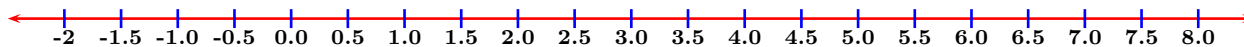
   $\dfrac{3}{8}x + 1 > 0$ **OR** $-2x \geq -4$
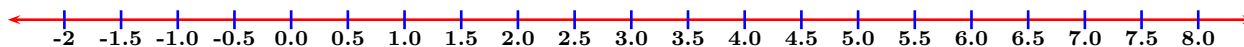
   1. _____

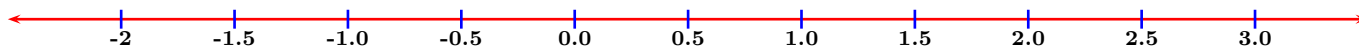2. **(4 points)** Solve, graph, then give your final answer in <u>set-builder</u> notation:

   $-2 < -x - 12$ **AND** $-14 < 5(x - 3) + 6x$

   2. _____

3. **(3 points)** Solve, graph your solution:

   $-4 \geq 2x - 5 > -7$

4. (3 points) Solve: $4|2x + 5| - 3 = 9$

4. _____

5. (3 points) Solve: $|3x - 7| = |3x + 8|$

5. _____

6. Consider the function $f(x) = |3x + 4|$,

    (a) (3 points) Solve $f(x) = 5$, **give answer in solution set.**

(a) _____

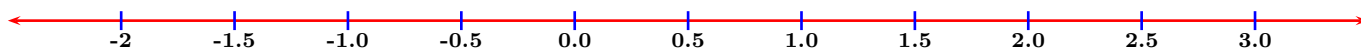   **(b) (2 points) Solve** $f(x) \geq 5$, **give answer in interval notation.**

(b) _____

    (c) (2 points) Solve $f(x) < 5$, **give answer in set–builder notation.**

(c) _____

7. (4 points) Consider $f(x) = 2x + 1$ **, solve, graph, then give your final answer in** <u>interval</u> **notation:**

$|f(x)| \leq 5$

7. _____

8. (3 points) Find the domain for the function $f(x) = \dfrac{x}{x^2 - 2x - 15}$ **, express your answer in** <u>interval</u> **notation.**

8. _____

9. (4 points) Solve $|-2x + 1| < 7$ **, and express your answer in** <u>interval</u> **notation.**

9. _____

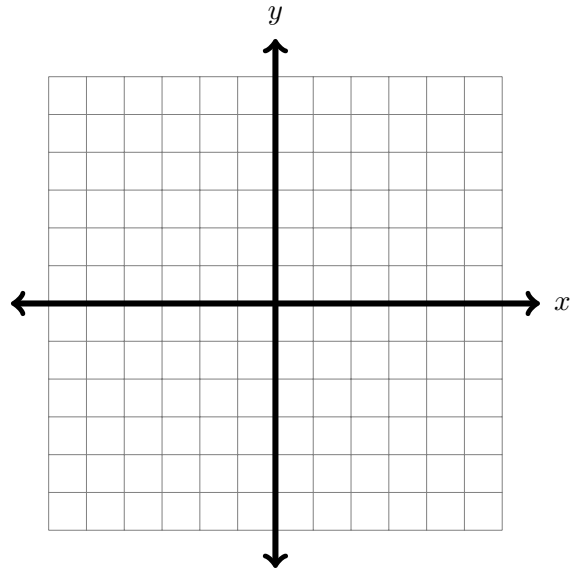**10. (2 points) Solve** $-2|4x| - 1 \leq 5$.

10. _____

11. (3 points) Solve $-3|2x - 5| - 4 \geq 2$.

11. _____

12. (5 points) Graph and shade the solution to the system of linear inequalities:

$$\begin{cases} f(x) < \frac{3}{2}x + 5 \\ g(x) < \frac{-3}{2}x + 5 \\ h(x) \leq 2 \\ k(x) \geq -4 \end{cases}$$

13. Beginning Algebra Review Problems:

   (a) (2 points) Simplify: $\dfrac{x^2 - 16}{x^2 - 9x + 20} \div \dfrac{x^2 + 4x}{x^2 - 5x}$

(a) _____

   (b) (3 points) Solve: $\dfrac{3}{x - 4} - \dfrac{2}{x + 5} = \dfrac{27}{x^2 + x - 20}$

(b) _____