

Section # _____ Name _____

UF ID # _____ Signature _____

1. Identify the key numbers of the inequality.

$$\frac{2}{x-4} - \frac{1}{x+1} \geq 0$$

- A. $-1, 4$ B. $-1, 4, 9$ C. $-6, -1, 4$ D. $-1, 2, 4$
-

2. Solve the inequality and write the solution set in interval notation.

$$|3x - 4| - 4 > -1$$

- A. $\left(\frac{7}{3}, \infty\right)$ C. $\left(-\infty, \frac{1}{3}\right) \cup \left(\frac{7}{3}, \infty\right)$
 B. $(-\infty, \infty)$ D. $\left(\frac{1}{3}, \frac{7}{3}\right)$
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3. If the point (a, b) is in quadrant III, in which quadrant is $(a, -b)$?

- A. I B. II C. III D. IV
-

4. Find the distance between the points $(0, -3)$ and $(2, 5)$. Simplify your answer **completely**.

- A. $2\sqrt{17}$ B. $2\sqrt{2}$ C. $\sqrt{8}$ D. $4\sqrt{17}$
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5. Which of the following relations defines a function?

- A. $y = \pm x^3$ C. $\{(-4, 2), (-2, 2), (0, 2), (2, 2)\}$
 B. $y^2 + 5 = x$ D. $\{(-3, 1), (-2, 5), (-2, 6), (3, 7)\}$
-

6. Give the domain and range of the following relation.

$$y = \sqrt{x - 7}$$

- A. domain: $(-\infty, \infty)$, range: $(-\infty, \infty)$
 B. domain: $(-\infty, \infty)$, range: $[7, \infty)$
 C. domain: $[0, \infty)$, range: $[0, \infty)$
 D. domain: $[7, \infty)$, range: $[0, \infty)$
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7. Let $f(x) = -x^2 + 5x$. Find and simplify $f(x - 2)$.

- A. $-x^2 + 5x - 6$ C. $-x^2 + 9x - 14$
 B. $x^2 + x - 6$ D. $-x^2 + 5x - 2$
-

8. Find the slope of the line satisfying the following conditions and write the equation of the line: vertical through $(3, 1)$

- A. slope is undefined; $x = 3$ C. slope = 0; $y = 1$
 B. slope = 0; $x = 3$ D. slope is undefined; $y = 1$
-

9. Write an equation of the line through $\left(\frac{1}{2}, -4\right)$ having slope -10 . Give the answer in standard form.

- A. $y + 4 = -10\left(x - \frac{1}{2}\right)$ C. $10x + y = -9$
 B. $20x + 2y = -79$ D. $10x + y = 1$
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10. Write an equation of the line passing through $(4, 6)$ and $(-1, 21)$. Give the answer in slope-intercept form.

- A. $3x + y = 18$ C. $y = -\frac{1}{3}x + \frac{22}{3}$
 B. $y = -3x + 22$ D. $y = -3x + 18$
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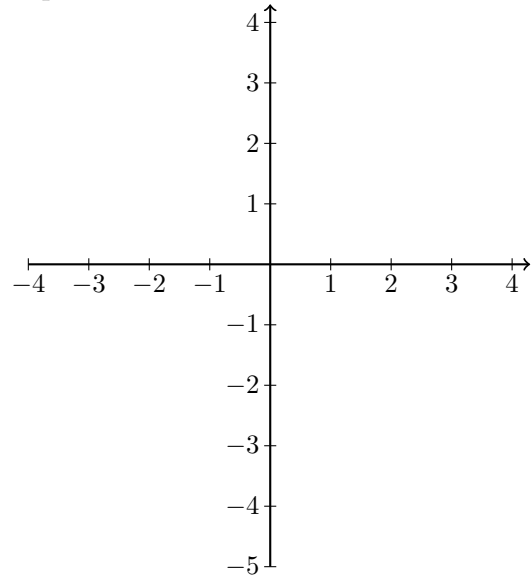
YOU MUST SHOW ALL WORK TO RECEIVE FULL CREDIT.

1. (6 points) Identify each statement as true or false. (Just write true or false beside each statement.)
- (a) The key numbers corresponding to $\frac{9}{x^2 - 3x + 2}$ are 0, 1, and 2.
 - (b) The solution set of the inequality $|x^2 - 6x - 7| \leq -14$ is $(-\infty, \infty)$.
 - (c) The point $(8, -16)$ is in quadrant IV.
 - (d) The y-intercept of the graph of $y = \frac{1}{2}x + 2$ is $(0, 2)$.
 - (e) The graph of a linear function is a line.
 - (f) $\{(1, 0), (2, 0), (3, 0)\}$ is not a function because 0 has more than one corresponding input.
2. (5 points) Solve the inequality and write the solution set in interval notation.

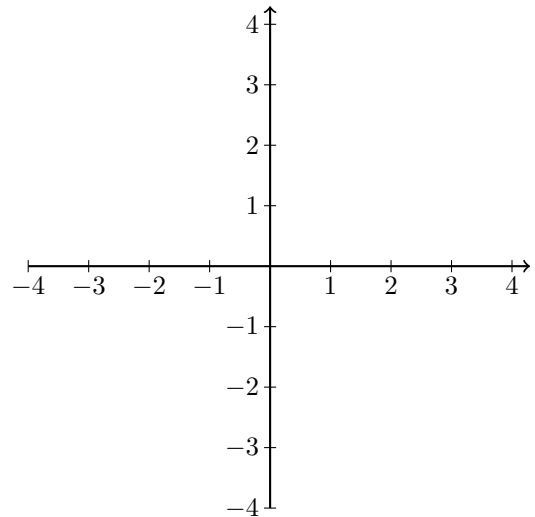
$$\frac{1}{x+6} \geq -\frac{1}{x-2}$$

3. (4 points) For the equation $y = -x^2 - 1$, complete the table with 5 ordered pairs that are solutions of the equation, and then graph the equation.

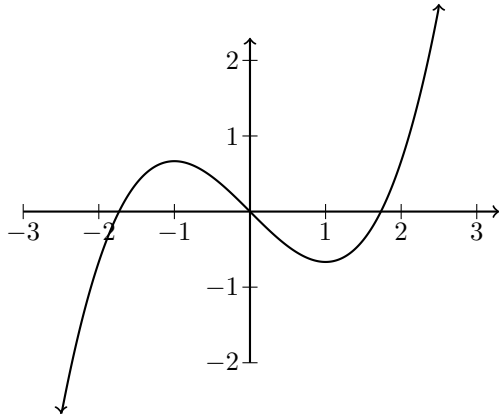
x	y



4. (4 points) Write an equation of the line passing through $(-1, 4)$ and $(-3, 3)$ and write the result in slope-intercept form. Graph the line.



5. (a) (3 points) Determine whether the following relation defines a function (JUSTIFY your answer), and give the domain and range.



- (b) (3 points) Determine whether the following relation defines a function (JUSTIFY your answer), and give the domain and range.

