

Name _____



Math 3 Unit 1: Functions and Inverses

| | | | | |
|---|--|--|---|---|
| | | | <p>January 25</p> <ul style="list-style-type: none"> Syllabus Pre-assessment <p>HW: Get class and calculator contract signed</p> | <p>January 26</p> <ul style="list-style-type: none"> Solve systems of linear equations algebraically <p>HW: worksheet 1.1</p> |
| <p>January 29</p> <ul style="list-style-type: none"> Solve systems graphically Solve systems of linear inequalities <p>HW: worksheet 1.2</p> | <p>January 30</p> <ul style="list-style-type: none"> Solve absolute value functions Graph absolute value functions <p>HW: worksheet 1.3</p> | <p>January 31</p> <ul style="list-style-type: none"> QUIZ!!! Applications of linear systems of equations <p>HW: worksheet 1.4</p> | <p>February 1</p> <ul style="list-style-type: none"> Inverses of functions Function operations <p>HW: worksheet 1.5</p> | <p>February 2</p> <ul style="list-style-type: none"> Compositions of functions <p>HW: worksheet 1.6</p> |
| <p>February 5</p> <ul style="list-style-type: none"> Review for test <p>HW: finish review</p> | <p>February 6</p> <ul style="list-style-type: none"> TEST!!! | | | |

1.1 - Solving Systems of Equations Algebraically

Solve each system of equations. Remember to express the answer as a point.

1. $y = 4x - 9$
 $y = x - 3$

2. $4x + 2y = 10$
 $x - y = 13$

3. $-3x + y = 4$
 $15x = 5y - 20$

4. $x + 7y = 0$
 $2x - 8y = 22$

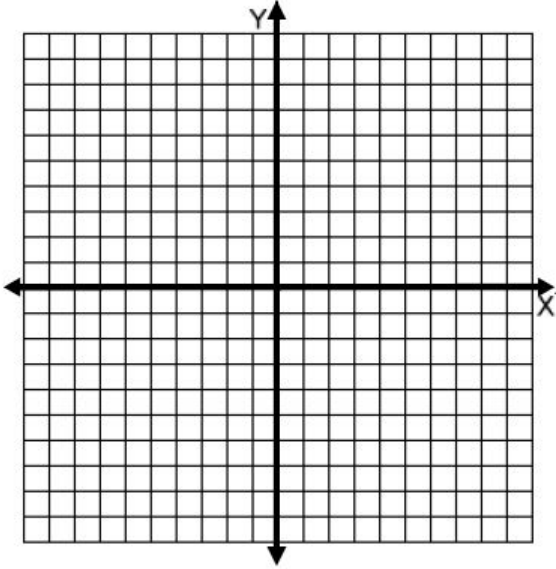
5. $-11x - 4y = 36$
 $10x + 10y = -20$

6. $3x - 5y = 17$
 $y = -4$

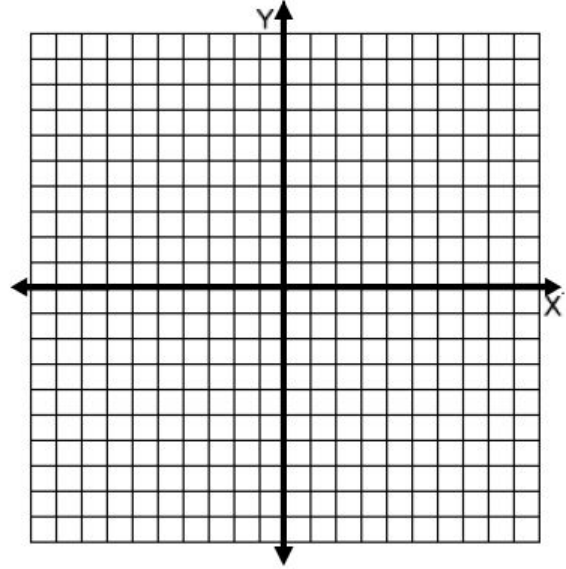
1.2 - Solve Systems of Inequalities

Solve each system of inequalities. Pay attention to whether the inequalities would have solid or dotted lines as well as where the shading belongs.

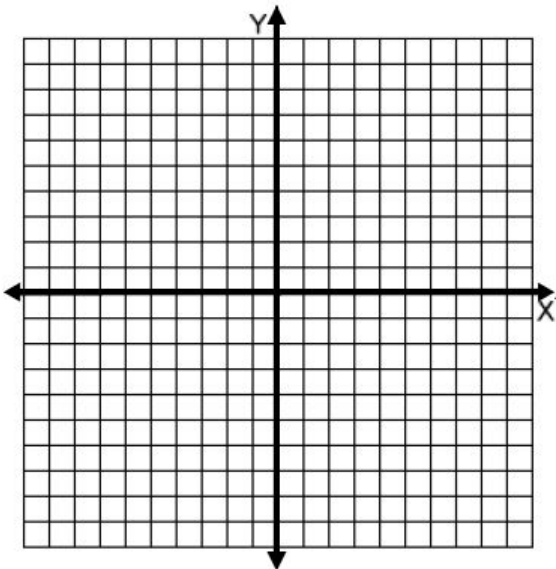
1. $y < -4x$
 $y \geq 3x - 2$



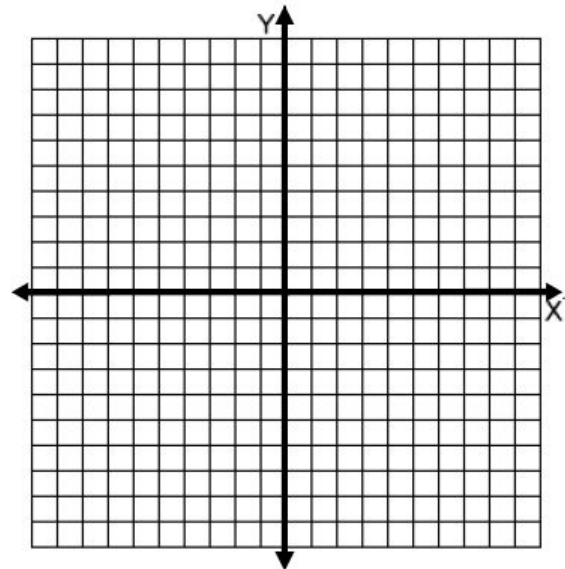
2. $y < -2x + 3$
 $y \leq x - 2$



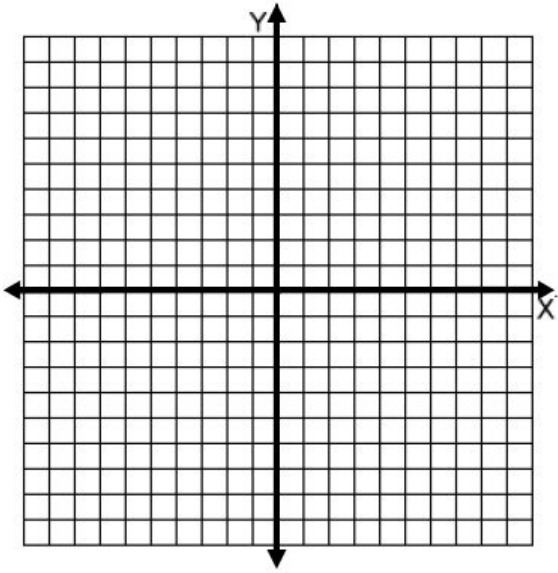
3. $y > -x - 1$
 $y < x - 5$



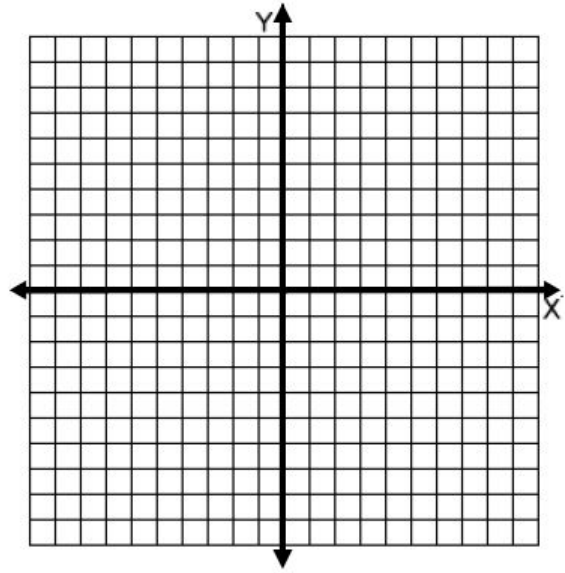
4. $x < -4$
 $3x + 2y \leq -2$



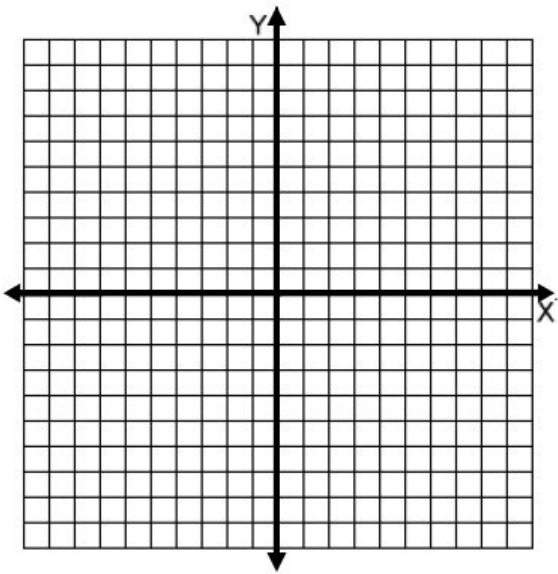
5. $-x - 3y < 21$
 $y \geq -x + 4$



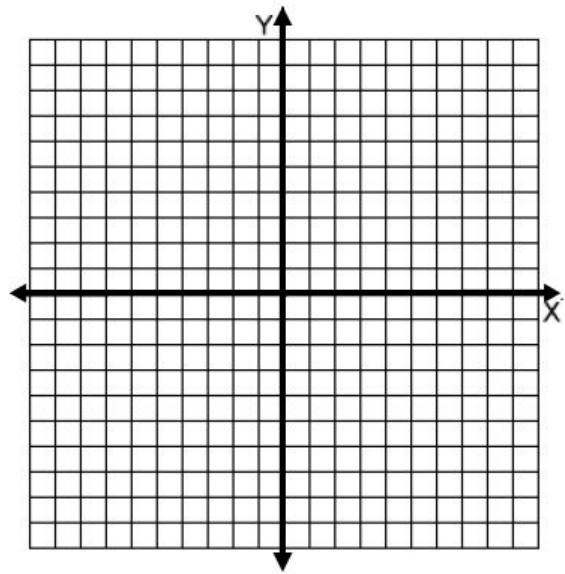
6. $x \leq 1$
 $y \geq -1$



7. $5x + 2y \geq 4$
 $3x - 4y < 28$



8. $x \leq 2$
 $x > 4$



1.3 - Solve and Graph Absolute Value Equations

Solve for x .

1. $|x - 2| = 4$

2. $4|x - 2| + 16 = 16$

3. $2|x + 4| + 10 = 6$

4. $|7x + 9| - 3 = 12$

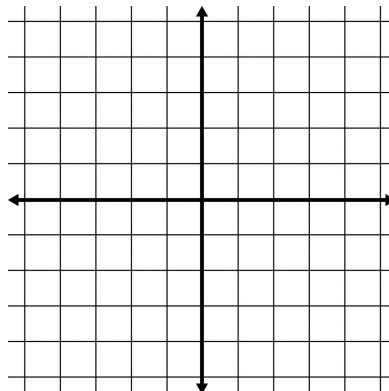
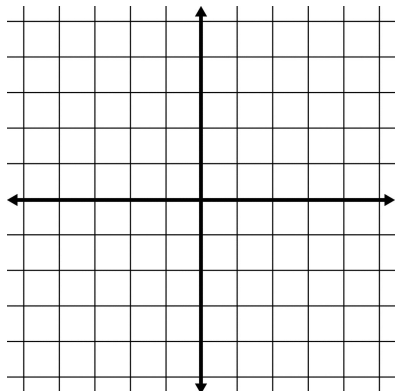
5. $6|13x - 3| = 684$

6. $\left|\frac{5}{3}x + 2\right| + 6 = 12$

Graph each absolute value function using a t -table.

7. $y = |x - 4| - 2$

8. $y = -3|x + 1|$



1.4 - Applications of Systems of Equations

1. The cost of 5 squash and 2 zucchini is \$1.32, while 3 squash and 1 zucchini cost \$0.75. Find the cost of each vegetable.

2. When Judy worked 8 hours and Ben worked 10 hours, their combined pay was \$80. When Judy worked 9 hours and Ben worked 5 hours, their combined pay was \$65. Find the hourly rate of pay for each person.

3. Rob has 40 coins, all dimes and quarters, worth \$7.60. How many dimes and how many quarters does he have?

4. There are 13 animals in the barn. Some are chickens and some are pigs. There are 40 legs in all. How many of each animal are there?

5. Jones Cleaning Service charges a \$30 fee to come to your house and \$10 per room. Smiths Cleaning Service only charges a \$10 fee to come to your house but \$12.50 per room. How many rooms does a house need to have for both cleaning services to charge the same amount?

6. The length of a rectangle is 5 feet more than the width. The perimeter of the rectangle is 58 feet. Find the width of the rectangle.

1.5 - Inverses

Determine the inverse of each function.

1. $f = \{(1, -2), (-2, 1), (0, 7)\}$

2. $f = \{(-6, 3), (8, 2), (3, 3)\}$

3. $f(x) = 3x - 4$

4. $f(x) = -6x + 4$

5. $f(x) = 5x + 2$

6. $f(x) = \frac{3x-1}{8}$

7. $f(x) = \frac{7x+9}{6}$

8. $f(x) = \frac{x-3}{5}$

9. $f(x) = \sqrt{x+5} + 2$

10. $f(x) = 17x^2$

11. $f(x) = (x+9)^2 - 5$

12. $f(x) = 5\sqrt{x-3}$

1.6 - Compositions of Functions

Given $f(x) = 3x + 3$, $g(x) = 6x - 5$, and $h(x) = x^2 + 14$, find the following:

1. $f(g(-3))$

2. $(f \circ h)(7)$

3. $g(h(24))$

4. $(h \circ f)(9)$

5. $g(f(0))$

6. $(h \circ g)(-4)$

7. $f(f(2))$

8. $(h \circ h)(5)$

9. $g(g(-6))$

Given $f(x) = 9 - x$, $g(x) = x^2 + 3$, and $h(x) = x - 2$, find the following:

10. $(g \circ f)(x)$

11. $f(g(x))$

12. $(h \circ f)(x)$

13. $f(h(x))$

14. $(h \circ g)(x)$

15. $g(h(x))$

16. $(g \circ g)(x)$

17. $h(h(x))$

18. $(f \circ f)(x)$