

Chapter 1 Final Exam Review

1. Use order of operations to simplify the expressions. **Show your work!**

a) $6 + 2(5 - 1) - 18 \div 9 + 1$

b) $2(-4)^2 - 5(2 + 3) + 20$

2. Evaluate the following expressions for the given value.

a) $6x - 4 + 2(x + 5)$, $x = 3$

b) $9 + 2(x - 8) + x^2 - 6$, $x = -5$

3. Simplify the following expressions.

a) $3 - 4(x + 2) + 6x + 8$

b) $2a - 5a^2 + 9 - 8a + 4a^2$

4. Solve the following equations. **Show your work!**

a) $6x - 8 = 2x + 20$

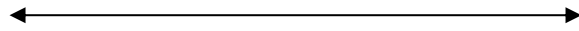
b) $\frac{2}{3}x + 5 = x - 4$

c) $2(x - 1) - 5 = x + 3$

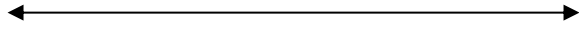
d) $\frac{1}{4}x - \frac{2}{3} = \frac{5}{2}$

Solve each inequality and sketch on the number line.

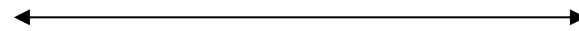
5. $x - 5 > 9$



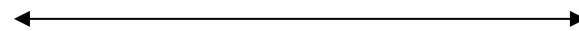
6. $-2x + 8 \geq$



7. $x + 2 < -1$ or $x - 3 > 1$



8. $5 < 2x - 1 \leq 13$



9. Solve the formulas for the given variables.

a) $V = \frac{1}{3}l \cdot w \cdot h$, solve for w .

b) $P = 2w + 2l$, solve for l .

10. Your cable company charges \$89 for basic cable and \$5.95 for each premium channel. If you have budgeted \$110, how many premium channels can you purchase?

11. A five-gallon bucket of blacktop sealer can seal 3500 square feet. If the parking lot is 15,000 square feet, how many five-gallon buckets are needed for the job? If each bucket costs \$40, how much would the total job cost?

Chapter 2 Final Exam Review

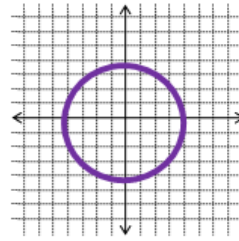
1. $(0, 3), (1, 1), (2, 2), (3, 4), (4, 2)$

Domain:

Range:

Is it a function?

2.

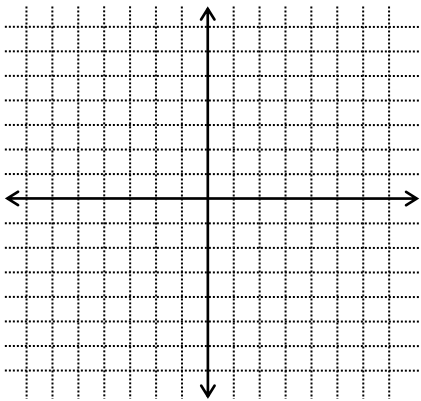


Domain:

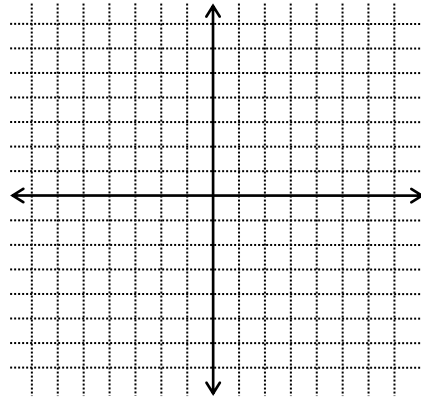
Range:

Is it a function?

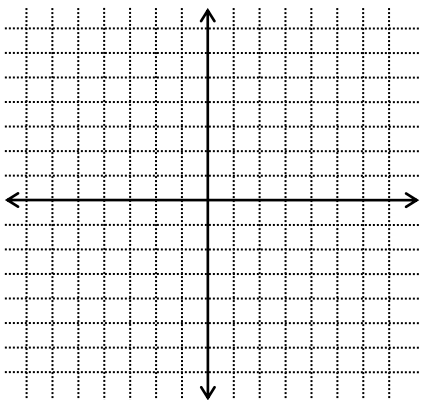
3. Graph the equation: $y = 3x + 2$



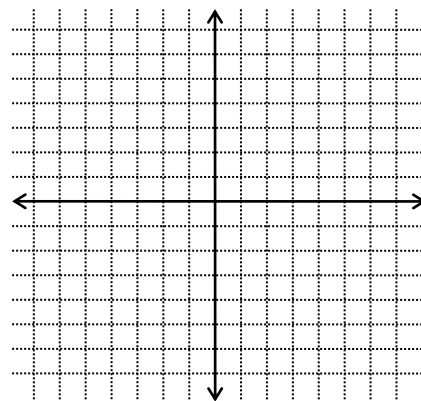
4. Graph the equation: $y = -x - 4$



5. Graph the equation: $y = \frac{1}{2}x - 3$



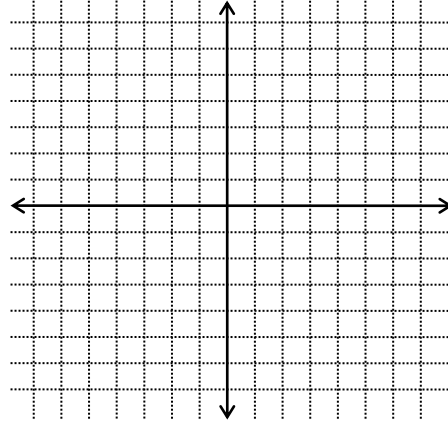
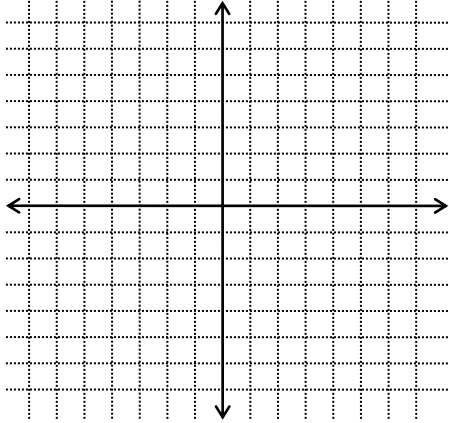
6. Graph the equation: $5x + 2y = 10$



Graph each linear inequality. Solid or dashed, remember to shade!

7. $y < \frac{1}{2}x + 3$

8. $y \geq -3$



9. Evaluate the function for the given values of x , given $g(x) = 2x^2 + 3x + 4$

a) $g(3)$

b) $g(-2)$

10. You are saving money to buy a new bike. The bike costs \$300. You have already saved \$100 and you save \$20 each week.

a) Write an equation to model your savings.

b) What is a reasonable domain and range for the model?

c) How much will you have saved after 6 weeks?

11. Given two points: (2, 1) and (6, 9)

a) Find the slope of a line passing through the points

b) Write the equation of the line passing through the points

c) Write the equation of a line parallel to this line which passes through (4,2)

d) Write the equation of a line perpendicular to this line which passes through (4, 2)

12. Find the x and y intercepts of the following lines.

a) $4x - 3y = 12$

x-int:

y-int:

b) $3x + 2y = 18$

x-int:

y-int:

Chapter 3 Final Exam Review

1. Is (-3, -8) a solution to:
 $2x + y = -14$
 $-2x + 3y = 22$

2. Solve using elimination/linear combination.

$$6x - 5y = 28$$

$$4x + 9y = -6$$

3. Solve by elimination/linear combination.

$$4x + 2y = 2$$

$$5x - 2y = -11$$

4. Solve by substitution.

$$x - 4y = 10$$

$$2x + 2y = -10$$

5. Solve using any algebraic method.

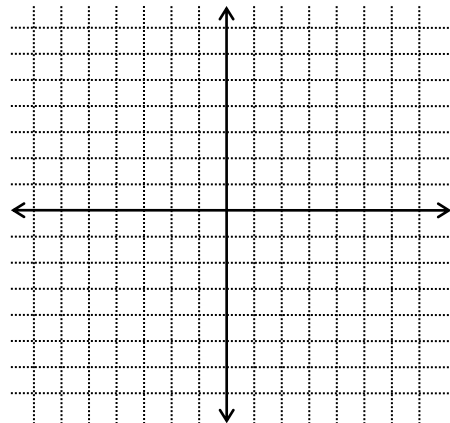
$$3y - x = 0$$

$$3x + 9y = 7$$

6. Solve by graphing

$$2x - 3y = 6$$

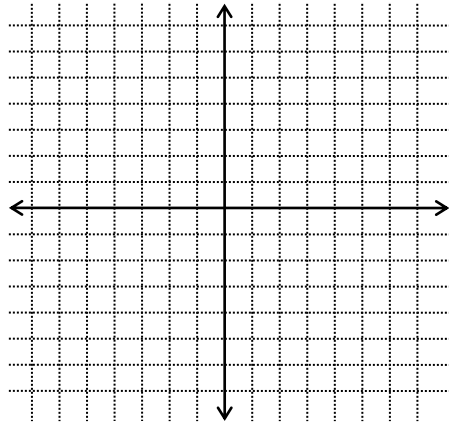
$$x + y = 8$$



7. Solve by graphing:

$$y = -2x$$

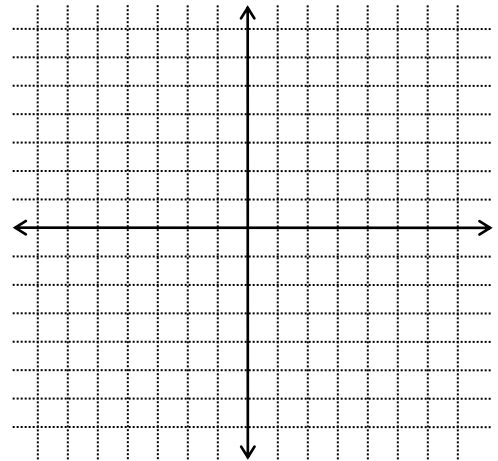
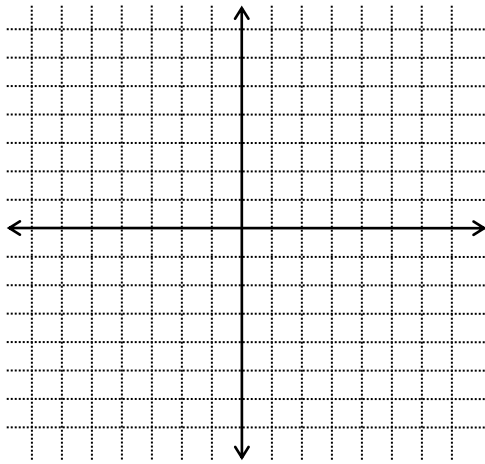
$$3x - y = 5$$



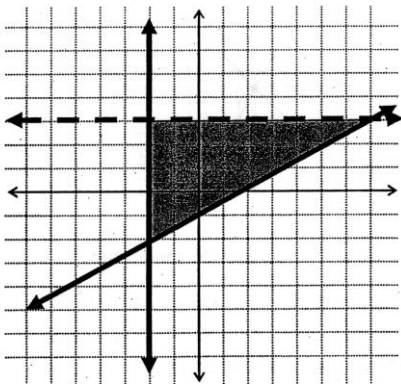
Graph each system. Be sure to shade the solution region.

8. $x > -2$
 $y \leq 6$
 $y > 2x - 1$

9. $y \leq \frac{3}{2}x - 2$
 $y > -2x + 5$



10. Write the system of linear inequalities for the given graph.



11. Graph the system on your calculator. Determine an appropriate window and use your calculator to find the point of intersection. Round to three decimal places.

$$y = 5x - 3$$

$$y = -x + 9$$

12. A shipment of baseball bats and gloves were delivered today. A total of 125 items were delivered. Baseball bats cost \$8 and gloves cost \$20. If the total cost of the delivery was \$1720, how many of each item were delivered?

13. A softball team raised \$528 selling hats and T-shirts. The hats sold for \$10 each, while the T-shirts sold for \$12 each. The team sold a total of 47 items. How many of each item was sold?

14. You offer to mow your neighbors' laws for \$20 or wash their cars for \$10. Your goal is to earn \$1500.

Define your variables

$l =$

$c =$

Write the system of inequalities which represents this problem

Give one possible solution to this problem.

15. Give an ordered pair that is a solution to:

$$x + 2y = 7$$

$$x - 2y = 5$$

16. How many solutions are there to the following systems?

Hint: When does a system have 0 solutions? When does a system have infinite solutions? When does a system have 1 solution?

a. $y = 2x - 12$
 $y = 2x + 3$

b. $4x - 2y = 6$
 $2x - y = 3$

Chapter 5 Final Exam Review

Graph the following quadratic equations. Be sure to plot points!

1. $y = x^2 + 4x + 3$

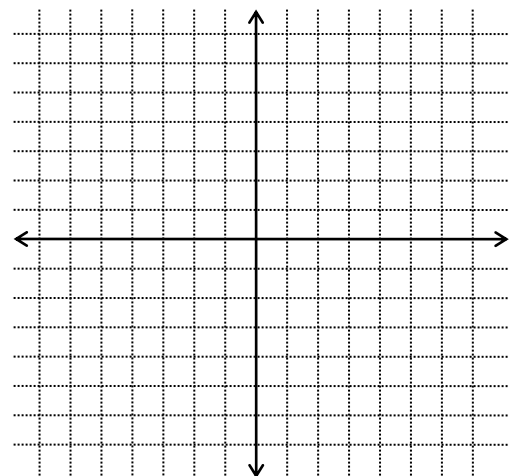
Axis of symmetry: _____

Vertex: _____

y-intercept: _____

x-intercepts: _____

D: _____ R: _____



2. $y = (x - 2)^2 - 1$

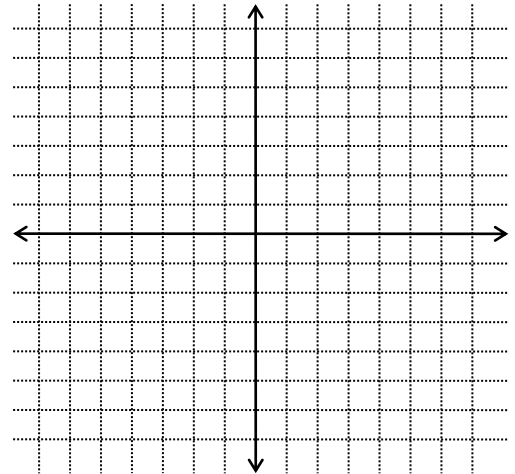
Axis of symmetry: _____

Vertex: _____

y-intercept: _____

x-intercepts: _____

D: _____ R: _____



3. $y = -(x + 1)(x - 3)$

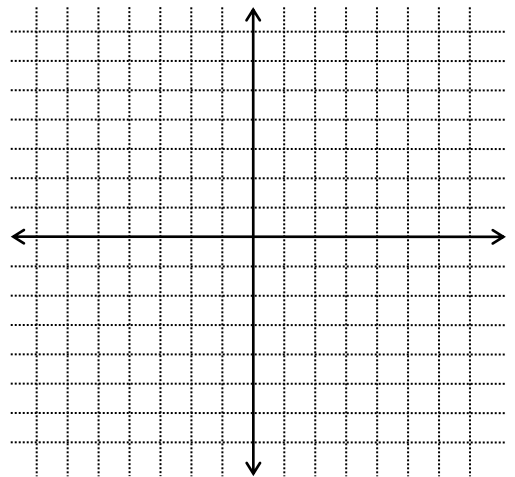
x-intercepts: _____

axis of symmetry: _____

vertex: _____

y-intercept: _____

D: _____ R: _____



4. Change from standard to factored form (why would you want the function in standard form??):

$$y = x^2 + 6x + 5$$

5. Change from factored to standard form:
form:

$$y = (x - 4)(x + 3)$$

6. Change from vertex to standard

$$y = (x - 5)^2 - 6$$

Simplify the following radicals.

7. $\sqrt{24}$

8. $\sqrt{\frac{9}{25}}$

9. $\sqrt{\frac{16}{5}}$

Solve the following equations using the square root method.

10. $2x^2 - 18 = 0$

11. $3(x - 1)^2 + 75 = 0$

Solve the following equations by factoring.

12. $x^2 - 36 = 0$

13. $x^2 + 4x - 12 = 0$

14. $2x^2 + 13x + 15 = 0$

15. $x^2 - 7x = 0$

Solve using the quadratic formula. What is the value of the discriminant? How many solutions will the equation have?

16. $x^2 + 4x - 1 = 0$

17. $x^2 - 4x + 4 = 0$

Perform the operation on the complex numbers.

18. $(2 + 7i) - (5 + 3i)$

19. $(2 + 4i)(6 - 5i)$

Chapter 6 Final Review

(This is a very short review of chapter 6 since we just covered it. You should go back to your notes from chapter 6 to see all of the different types of problems you might see.)

Add/Subtract the polynomials.

1. $(x^3 - 2x^2 + 1) + 2(x^3 - 5x^2 + 4x + 8)$

2. $(3x^2 - 8x + 2) - (7x^2 - 3x - 5)$

Multiply the polynomials.

3. $(2x + 7)^2$

4. $(x - 3)(2x^2 + 4x - 3)$

5. $(x + 6)(x - 1)(x + 2)$

Factor completely!

6. $10x^3 - 5x^2$

7. $x^3 - 7x^2$

8. $6x^3 + 2x^2 - 12x$

9. $x^3 - 125$

10. $27x^3 + 8$

11. $x^3 + 5x^2 - 2x - 10$

12. $x^3 + 7x^2 - 3x - 21$

13. $6x^6 - 6x^4 - 12x^2$

14. $x^4 + 3x^2 - 28$