

Summer Math
Worksheet 1

Simplify.

1. $|-5|$

2. $|6-9|$

3. $5-|12|$

4. $|5|-|12|$

5. $\frac{|-8-12|}{|4|}$

6. $\frac{-|7|-5^2}{4|-8|}$

Convert each of the following.

7. $15\text{cm} = \underline{\hspace{2cm}} \text{m}$

8. $0.92\text{km} = \underline{\hspace{2cm}} \text{mm}$

9. $1.23\text{mm} = \underline{\hspace{2cm}} \text{m}$

10. $5.2\text{m} = \underline{\hspace{2cm}} \text{km}$

11. $48\text{oz} = \underline{\hspace{2cm}} \text{lb}$

12. $36\text{yd} = \underline{\hspace{2cm}} \text{in}$

13. $6\text{qt} = \underline{\hspace{2cm}} \text{gal}$

14. $10\text{ft} = \underline{\hspace{2cm}} \text{yd}$

Summer Math

Worksheet 2 - Percents

Solve using the percent proportion. Round each answer to the nearest tenth if necessary.

1. 18 is 90% of what number? _____

2. What is 80% of 70? _____

3. 4 is what percent of 2? _____

4. What number is 70% of 21? _____

5. 11.5% of 70 is what number? _____

6. What percent of 70 is 0.28? _____

7. What is $\frac{1}{2}\%$ of 400? _____

8. 6.5% of 500 is what number? _____

9. 3.4 is what percent of 13.6? _____

10. Forty-nine is what percent of forty-nine? _____

11. This year the population of Darlington County is 156% of its population 10 years ago. The population 10 years ago was 134,000. What is the population this year? Round to the nearest whole number.

12. The Davidson Bakery has 750 loaves of day-old bread they want to sell. If the price was originally \$1.49 a loaf and they sell it for \$1.19 a loaf, what percent discount, based on the original price, should they advertise?

13. Rita's high school basketball team finished the season with a record of 15 wins and 9 losses. What percent of the games played were won?

14. Everything in a store is discounted 10%. The original price of an iPad is \$249.99. If the sales tax is 6%, how much does the customer owe in total?

15. If you use a 35¢ coupon to buy a \$2.89 box of ice cream sandwiches, what percent off is this, to the nearest whole-number percent?

16. Sue's Sweaters buys a sweater for \$16.80. If the sweater is then resold in the store for \$21.84, what is the percent of markup based on the original cost?

17. Below is the budget Sue has made for the money she earns weekly from babysitting. Find how much Sue earns weekly and how much she plans to put towards her savings and clothes.

Food	25%	\$22.50
Savings	20%	
Entertainment	15%	\$13.50
Clothes	40%	

Worksheet 3 – Properties of Exponents
Evaluate. No Calculator.

1. $\frac{m}{2n+1}$; for $m = 45$ and $n = 4$

2. $a(3b-8)$; for $a = 2$ and $b = 5$

3. $x^2 - y^3 + z$; for $x = -5$, $y = 3$, and $z = -8$

4. $(y+1)(3-y)$; for $y = 5$

5. $(2m)^3$; for $m = -1$

Simplify. Write answers without negative exponents.

6. $x^2 \cdot x^4 \cdot x^7$

7. $y^2 \cdot y^3 \cdot y \cdot y^0$

8. $7^4 \cdot 7^5$

9. $m^3 \cdot m^{-5}$

10. $(4a^3b^2)(5ab^4)$

11. $(-3x^2y^0z^{-1})(2xy^4z^2)(3x^2y^3z^2)$

12. $(y^3)^7$

13. $(3m^4n^3)^2$

14. $\frac{5^7}{5^3}$ _____

15. $\frac{18x^5y^2z^8}{16x^2yz^3}$ _____

16. $\frac{-20a^2b^6c^4}{15a^6b^3c^9}$ _____

17. $4p^3q^2 - 5p^2q^3 - 9pq + p^2q^3 - 2p^3q^2$ _____

18. $(6x^4 - x^3 - 7x^2 + 14x + 11) + (8x^3 - 10x^2 - 2x + 3)$ _____

19. $(5y^3 - 13y^2 + 15) - (2y^3 + 7y^2 - 6y - 17)$ _____

Worksheet 4 – Scientific Notation

1. The wavelengths of x-rays, in centimeters, is 3.048×10^{-9} . Write this number in standard form.

2. One of the nearest stars, Alpha Centauri, is about 39,000,000,000,000 km from Earth. Write this number in scientific notation.

3. The diameter of a silver atom is about 0.00000000025 m. Write this number in scientific notation.

4. A speck of dust in an electron microscope is 1.2×10^2 millimeters wide. The image is 5×10^2 times larger than the actual size. How many millimeters wide is the actual image?

5. The speed of light is approximately 6.71×10^8 miles per hour. How many miles will light travel in 1 minute?

6. If it takes light 8.3 minutes to reach Earth from the Sun, what is the distance from the Sun to Earth?

Worksheet 5 – Square Roots

Simplify each of the following expressions. No calculators.

1. $\sqrt{9}$

2. $\sqrt{100}$

3. $4\sqrt{49}$

4. $\frac{\sqrt{64}}{16}$

5. $\sqrt{81} + \sqrt{121}$

6. $2\sqrt{400} - 3\sqrt{25}$

Estimate the following values to the nearest tenth.

7. $\sqrt{8}$

8. $\sqrt{80}$

Write in simplest radical form.

9. $\sqrt{8}$

10. $\sqrt{45}$

11. $\sqrt{x^2}$

12. $\sqrt{a^8}$

13. $\sqrt{24x^4y^{10}}$

14. $2\sqrt{49a^{10}b^9}$

Add or subtract the following expressions.

15. $4\sqrt{3} + 7\sqrt{3}$

16. $6\sqrt{11} + 8\sqrt{11}$

17. $4\sqrt{13} - 9\sqrt{13}$

18. $3\sqrt{18} - 2\sqrt{50} + \sqrt{32}$

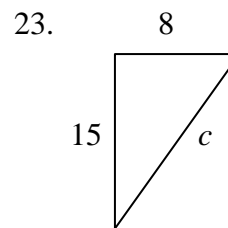
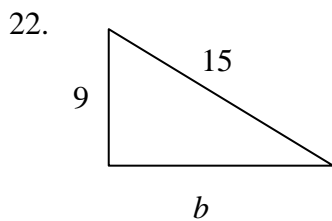
Order from least to greatest.

19. $8, \sqrt{41}, 9, \sqrt{56}, \sqrt{65}, 6$

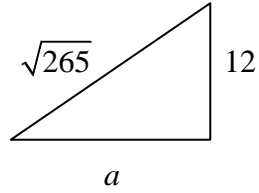
20. $\sqrt{91}, 9, \frac{79}{7}, 9.0002$

21. If $\odot \cdot \odot \cdot \odot \cdot \odot \cdot \odot = 256$, then what is \odot equal to?

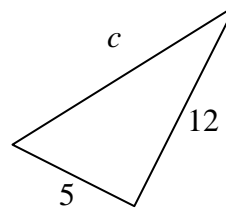
Find the missing side of the right triangle. No Calculators.



24.



25.



Draw a diagram and solve.

26. A 15-ft ladder is placed against a wall with the bottom of the ladder 60 inches from the base of the wall. Find how far up the wall the ladder will reach to the nearest foot.
27. Betty wants an ivy vine to grow on a section of fence in her front yard. To give the plant extra support, she decides to run a wire diagonally upwards from ground level at one end to the top of the other end of the section of fence. This section of fence has a length of 1.2 meters and a height of 90 cm. How long will the wire need to be?

Worksheet 6 – Algebraic Expressions

Let x = the number. Write an algebraic expression.

1. Seventy-eight decreased by a number _____

2. Seven more than the product of a number and 5 _____

3. Sixteen less than the quotient of a number and 3 _____

4. Three times the sum of twice a number and 9 _____

5. Nine times the difference of half a number and 4 _____

Write word phrases for these expressions.

6. $5x + 4$ _____

7. $25 - 2y$ _____

8. $6(m + 4)$ _____

9. $7(3b - 5)$ _____

10. $\frac{k}{2} - 9$ _____

Simplify.

11. $6x + 3(2x + 7)$

12. $8 - (5g - 7)$

13. $12 - 5(2 - m) + 7m$

14. $6(y - 4) + 10(2y + 3)$

15. $-3(4k - 5) + 2k - (-13k + 5)$

16. $4(9n - 1) + 5(3n + 7) - 6(n - 7)$

Worksheet 7 – One-Sided Equations
Solve each equation. No Calculators.

1. $2n - 5 = 17$

2. $-79 - 8y = -15$

3. $\frac{2}{3}m + 12 = 28$

4. $\frac{1}{2}x + \frac{1}{3} = \frac{2}{3}$

5. $0.3m - 8.4 = 7.2$

6. $12.6 = 0.6 + 1.5x$

7. $\frac{y}{2} + 13 = 17$

8. $\frac{n+3}{3} + 7 = -6$

9. $-3(y+4) = 6$

10. $15 = x + 6 - 10x$

11. $2(3-y) + 6y = 12$

12. $4(p+2) - 2(1-p) - 4p = 0$

Worksheet 8 – Two-Sided Equations
Solve. No Calculators.

1. $6y + 3 = 8y + 2$

2. $6(c - 2) + 4c = 8c$

3. $15 - 7x = 8x - 30$

4. $-12(x + 3) + 2 = 6(x - 1) + 8$

5. $\frac{7}{8}n - \frac{5}{6} = \frac{3}{4}$

6. $-\frac{1}{12} + \frac{3}{4}x = \frac{7}{3}$

7. $4(p + 5) = 2(p + 40)$

8. $2(5w - 7) = 9w + 17$

9. $5c - \frac{1}{4} = 4c + \frac{3}{4}$

10. $3(2x + 4) = 2(9 + 2x)$

11. $7(-3x - 2) + 4(1 - x) = 9(2x - 5) - 3(x - 5)$

12. $\frac{2}{5}(a + 10) = \frac{1}{4}(a + 20)$

Worksheet 9 – Word Problems

Write an equation and solve. Write answers in a complete sentence.

1. Find three consecutive integers whose sum is 66.
2. Find three consecutive even integers whose sum is -186.
3. Nine less than three times a number is twenty-seven. What is the number?
4. Find four consecutive odd integers such that the sum of the least integer and the greatest integer is 164.
5. One number is six times a second number. Their sum is 133. Find the numbers.
6. The difference of two numbers is 16. The first number is five times the second number. Find the numbers.

7. Thirty decreased by three times a number is six less than three times the number. Find the number.

8. Four times the sum of a number and three is seven times the number decreased by three. Find the number.

9. A gallon of milk, bread, and a bag of fruit cost \$15.20 at the market. Milk was \$2.59, and two loaves of bread together were \$4.30. How much did the fruit cost?

10. Cathy is 6 inches taller than her brother Marcus. Find Marcus' height if together they are 11.5 feet tall.

11. If $\frac{3}{4}$ pound of meat costs \$3.90, what does one pound cost?

12. A new car sells for \$12,500, which is \$500 more than 15 times the cost of a canoe. What is the cost of the canoe?

13. If Sarah was driving a race car at 200 kilometers per hour, what was her speed in miles per hour? (1 mile = 1.6 kilometers)

14. Eileen practiced her piano 15 minutes longer on Sunday than on Saturday. If she practiced a total of 41 minutes this weekend, how long did she practice each day?

15. One large container weighs 2.5 kg less than the other. The weight of both together is 121.5 kg. What is the weight of each container?

16. The sum of an even integer and twice the next greater even integer is eight more than four times the greater integer. Find the lesser integer.

Worksheet 10 – Inequalities
Solve each inequality.

1. $6x \geq -24$

2. $-4m < 32$

3. $-3y \geq \frac{3}{8}$

4. $27 > -10n + n$

5. $6 + 8x \leq 46$

6. $43 - 14b < 14b - 13$

7. $\frac{3m}{5} < -15$

8. $\frac{k}{5} + 3 > -13$

Solve. Graph the solution set on the number line.

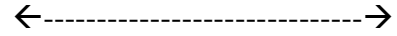
9. $3x + 11 - 8x - 5 < -21$

←-----→

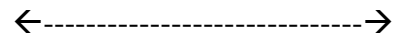
10. $9 - 12y + 4 + 6y > -5$

←-----→

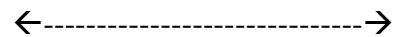
11. $-z + 7 \leq 4z - 18$



12. $5(m - 6) \geq 10(m - 6)$



13. $-7(x - 5) + 2x < 2(2x + 1)$



Write an inequality and solve.

14. Twice a number, subtracted from 35 is greater than 15.

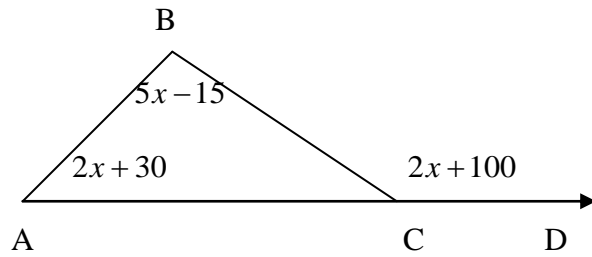
15. Betty bowled 146 and 201 in her first two games at a local tournament. What must she bowl in her third game to have an average of at least 180?

Worksheet 11 – Geometry

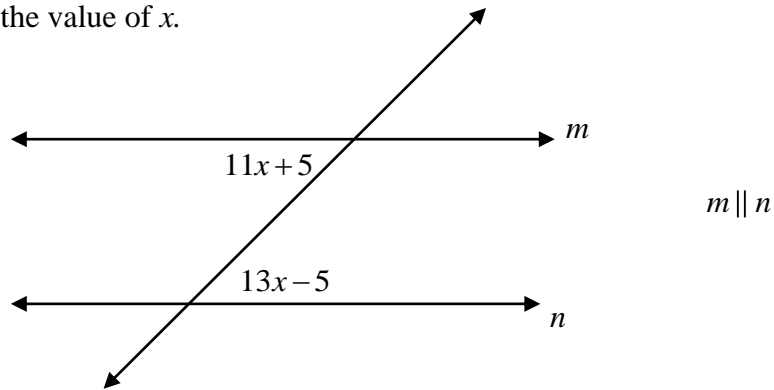
Solve each problem. Be sure to show the appropriate work.

1. Find the circumference of a circle with a radius of 42 mm. Use $\frac{22}{7}$ for π .
2. Find the volume of a rectangular prism that is 14 cm by 18.5 cm by 25.4 cm.
3. An angle is fifteen degrees less than nine times its supplement. Find the measure of both angles.
4. An angle is six degrees more than half its complement. Find the measure of both angles.
5. The base angles of an isosceles triangle are three more than seven times the vertex angle. Find the measure of all three angles in the triangle.
6. Find the perimeter of a right triangle if one leg is 24 cm and the hypotenuse is 30 cm.

7. Using the diagram below, find the measure of $\angle ACB$.



8. Find the value of x .



9. What is the measure of one exterior angle in a regular decagon?
10. How many sides does a polygon have if the sum of its interior angles is 2160° ?

Worksheet 12 – Graphing

State the quadrant in which each ordered pair can be found.

1. $(-3, 6)$ _____

2. $(4, 17)$ _____

3. $(0, 6)$ _____

4. $(-5, -11)$ _____

5. $(-3, 0)$ _____

6. $(5, -9)$ _____

Write each equation in slope-intercept form. State the slope and y-intercept.

7. $3x + 4y = 16$ _____

8. $6y + 3x = 15$ _____

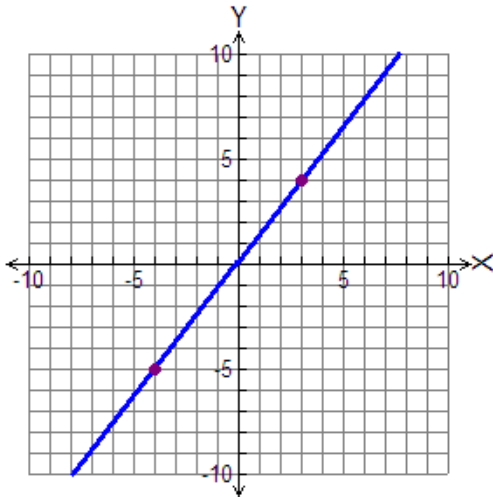
9. $8x - 12y - 24 = 0$ _____

10. $-5x - 3y = 24$ _____

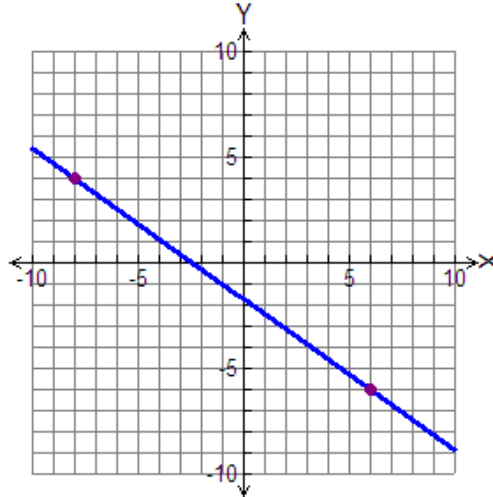
11. $\frac{1}{2}y + \frac{3}{8}x = 5$ _____

Find the slope of the line.

12. _____



13. _____



Find the slope of the line passing through the following points:

14. (4, 7) and (6, 11)

15. (2, 4) and (3, -2)

16. (-5, -8) and (2, 4)

17. (-6, 5) and (2, 5)

18. (3, -12) and (-8, -7)

19. (7, 0) and (-1, 4)

20. (-9, 3) and (-9, -7)

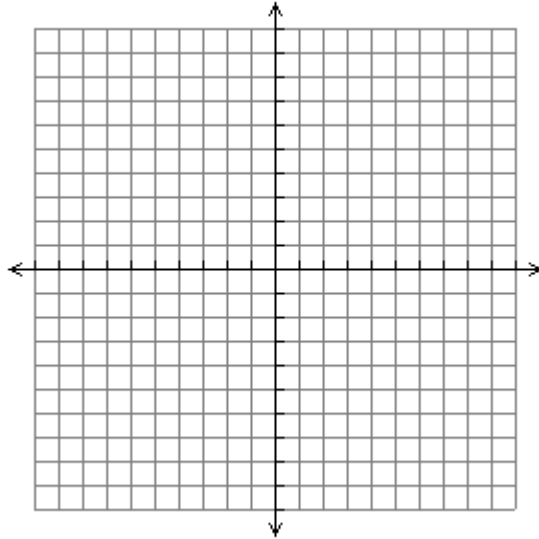
21. (2, -15) and (20, -3)

Worksheet 13 – Graphing

Complete the table of values for each equation and graph.

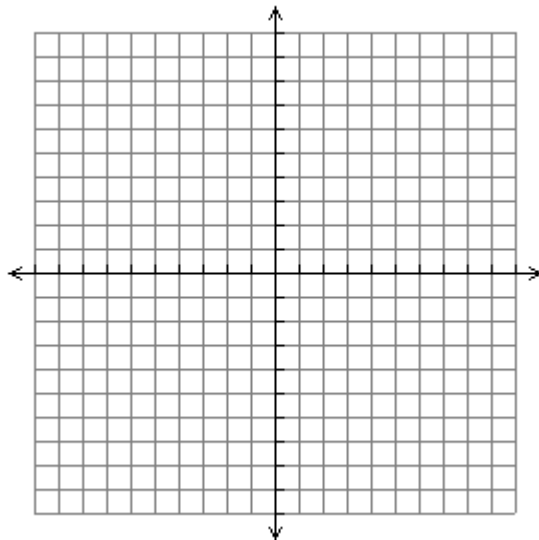
1. $y = x + 2$

x	y
-3	
-1	
0	
3	



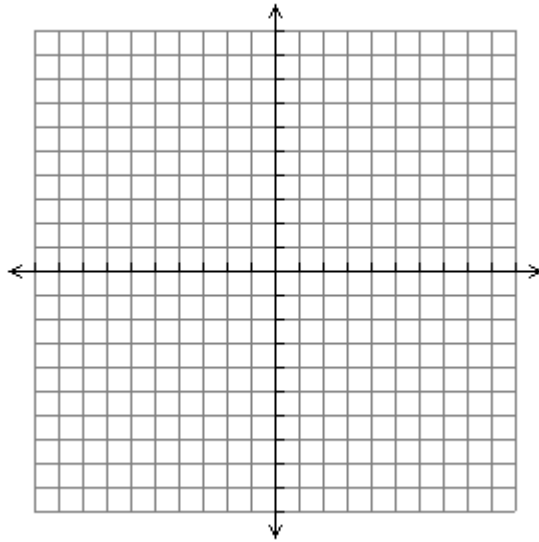
2. $y = -2x$

x	y
-2	
0	
1	
2	



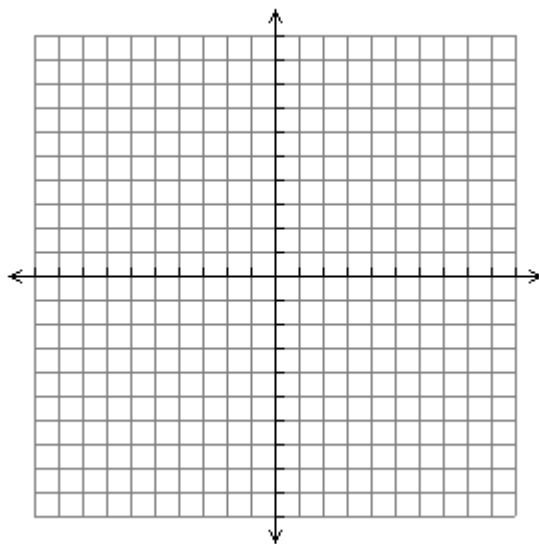
3. $y = -\frac{1}{2}x + 1$

x	y
-4	
0	
2	
4	



4. $y = 3x - 1$

x	y
-1	
0	
1	
2	



Find the x - and y -intercepts for each linear equation.

5. $6x - 12y = 18$

6. $3y + 2x - 15 = 0$

7. $10y - 12x = -30$

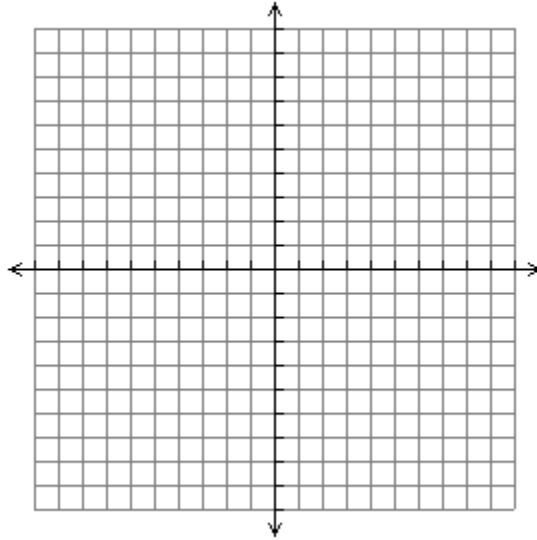
8. $-5x + 3y = 45$

9. $7x - 4 = 24$

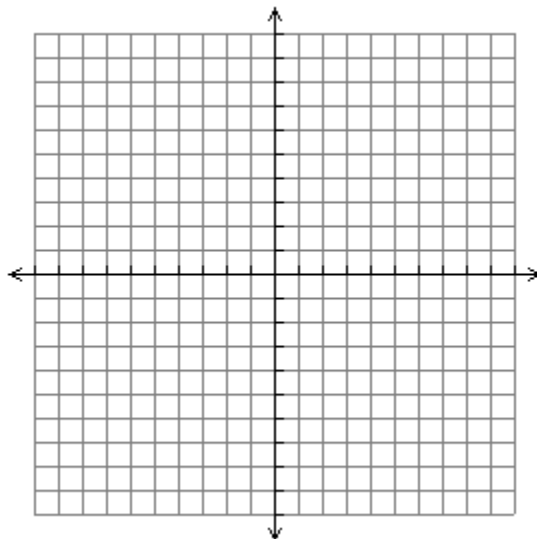
10. $-6 = 3y - 30$

Graph each equation using x - and y -intercepts. Label the intercepts.

11. $3x - 6y = 12$



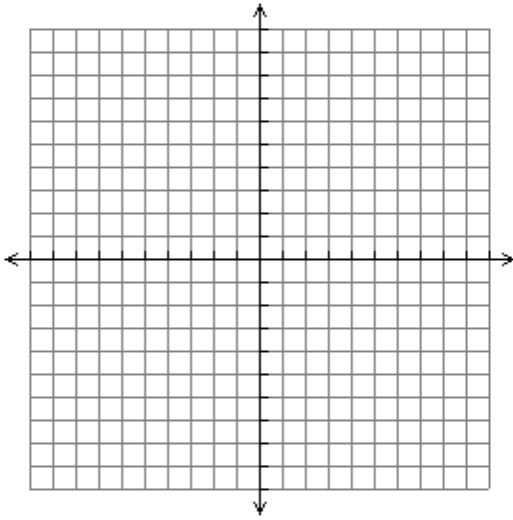
12. $4x + 2y = 16$



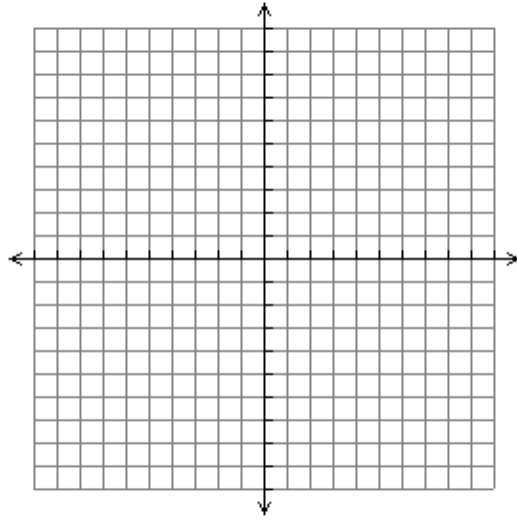
Worksheet 14 – Graphing Linear Equations

Graph using any method.

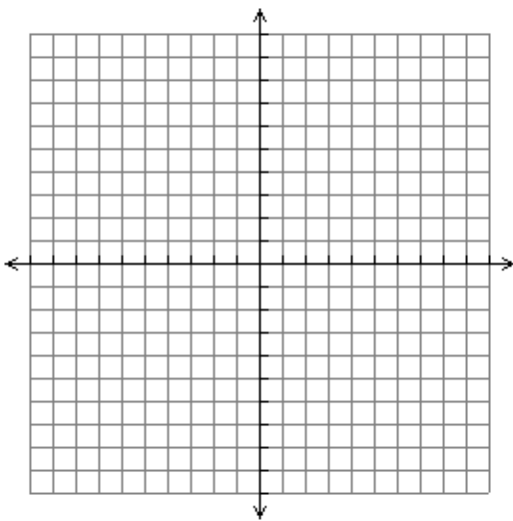
1. $4x + 2y = 10$



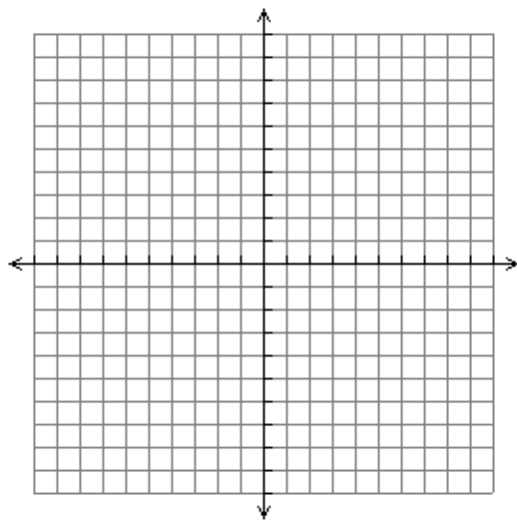
2. $7y - 14x = -28$



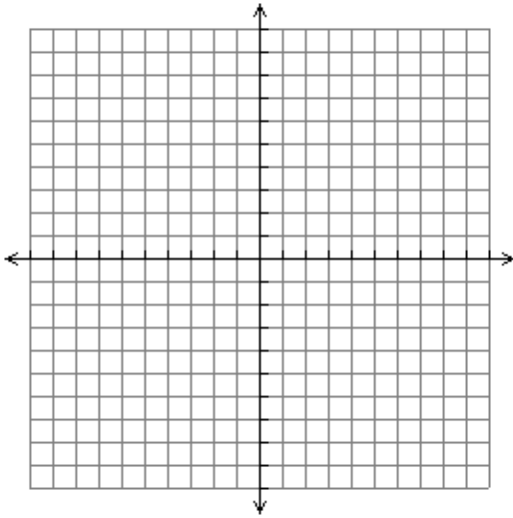
3. $5y - 25x = 10$



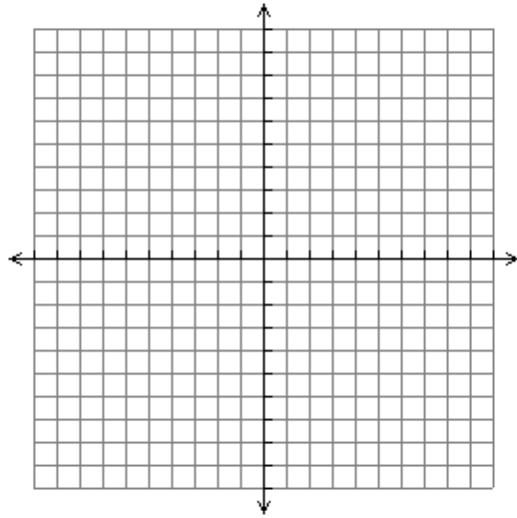
4. $3y - x = 12$



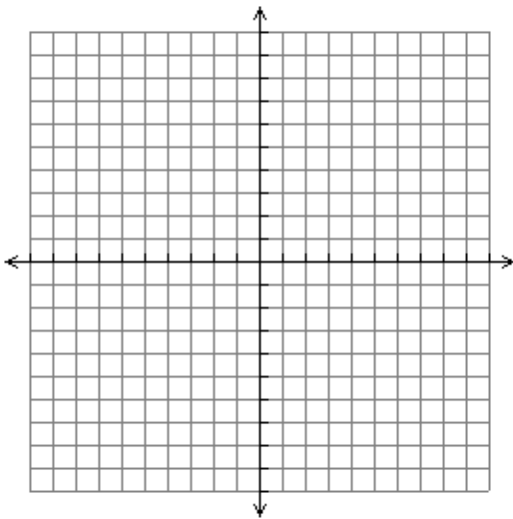
5. $-5x - y = -1$



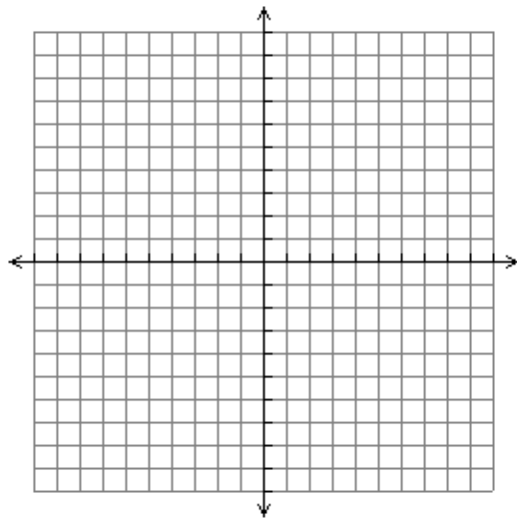
6. $3y - 12x = 6$



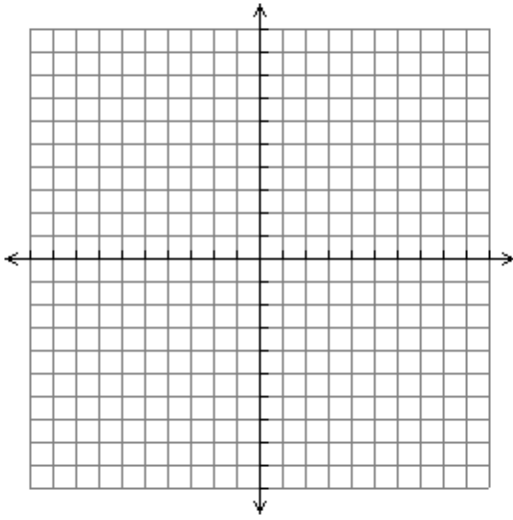
7. $x + 4y = 36$



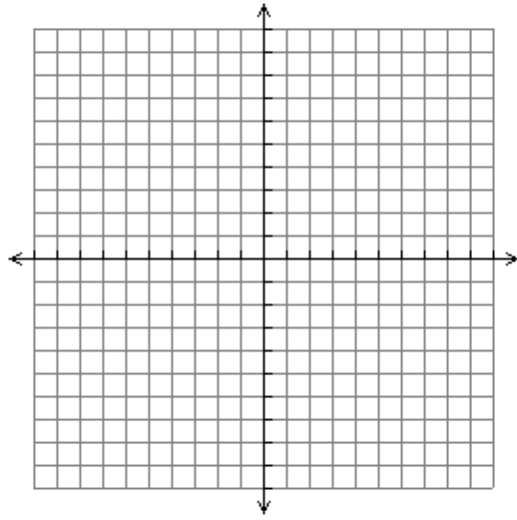
8. $4y + 4x + 2 = -2$



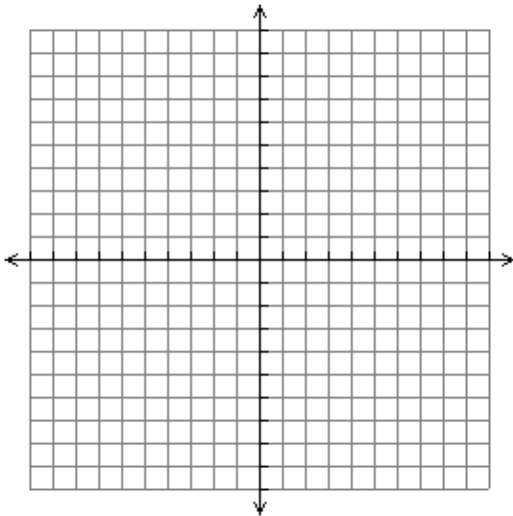
9. $6x - 3 = 12$



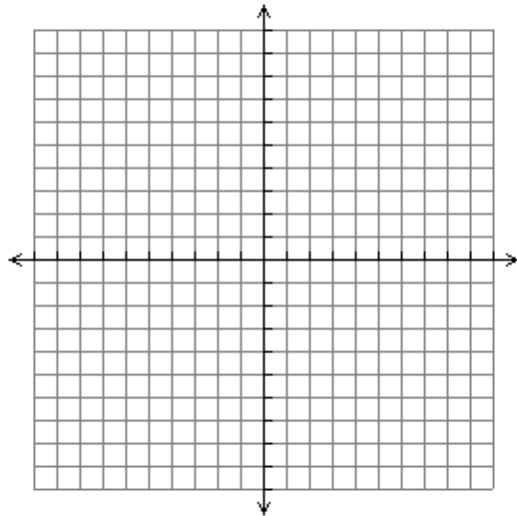
10. $-8 - 2x = 10$



11. $-4y + 16 = 24$



12. $\frac{1}{2}y - 3 = -5$



Worksheet 15 – Systems of Linear Equations

Determine whether or not each ordered pair is a solution to the given system.
Show Work.

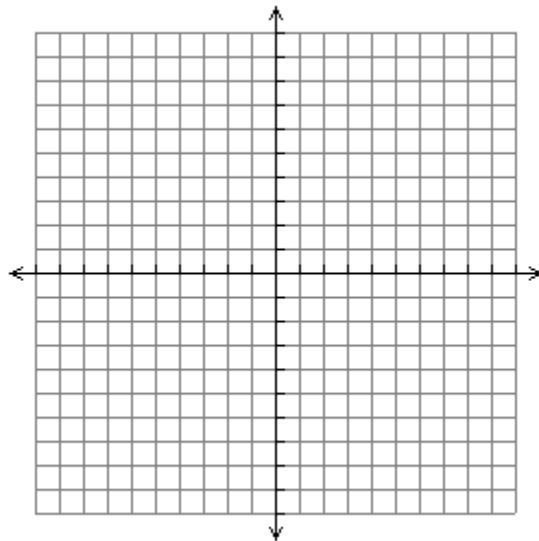
1. $x + y = 4$
 $2x + y = 5$; $(1, 3)$

2. $-2x + y = 6$
 $x - y = -3$; $(-2, 2)$

Solve each system by graphing.

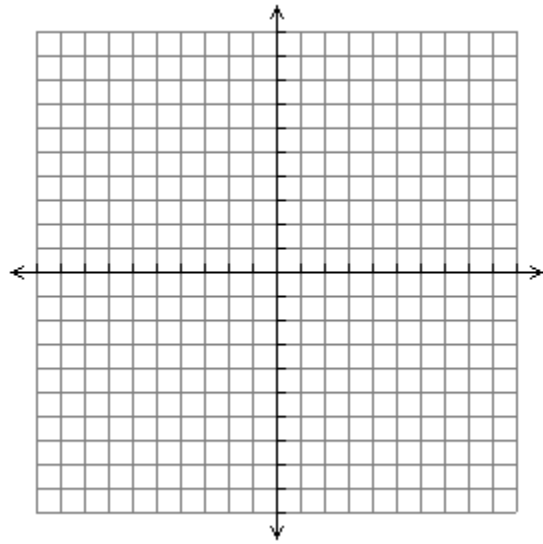
3. $x + y = 1$
 $x - y = -3$

Solution: _____



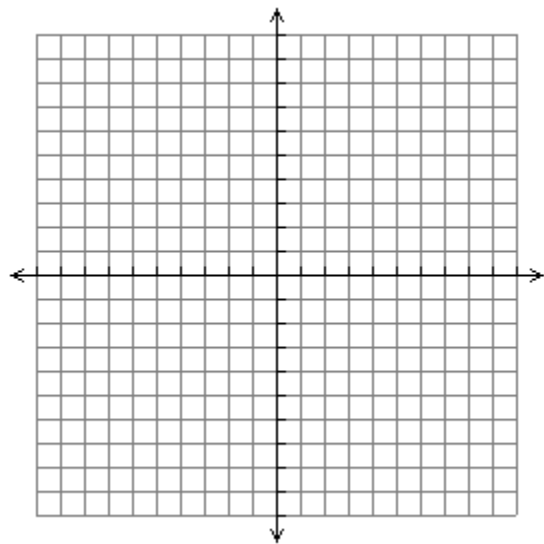
4. $y = 3x + 1$
 $y = -3x - 5$

Solution: _____



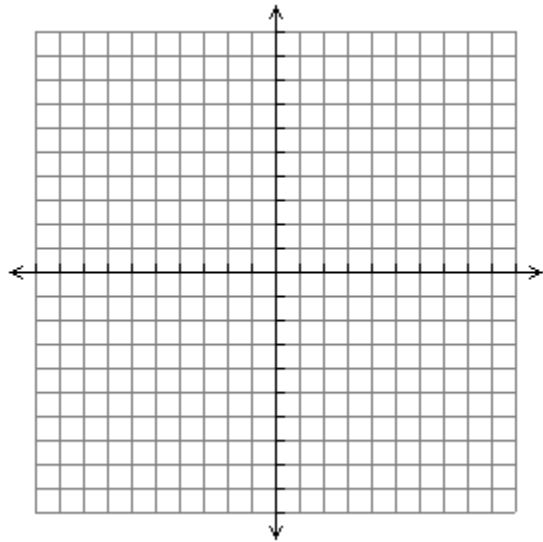
5. $y = 2x + 1$
 $2y = 4x - 10$

Solution: _____



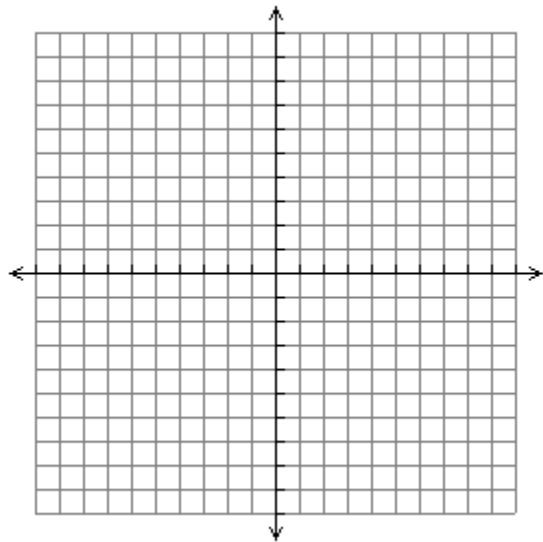
6. $y = 2 + x$
 $x + 3y = 18$

Solution: _____



7. $y = \frac{1}{3}x - 4$
 $3y = -12$

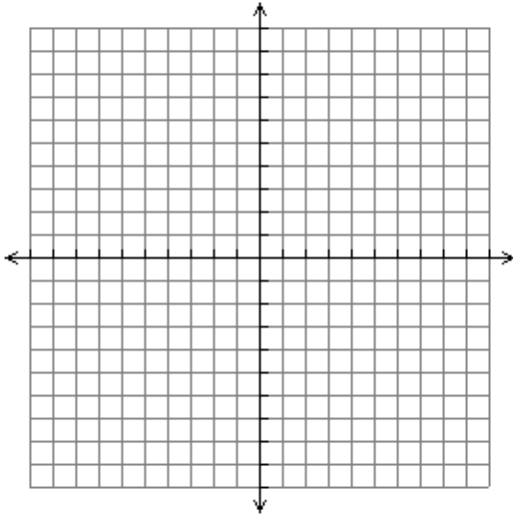
Solution: _____



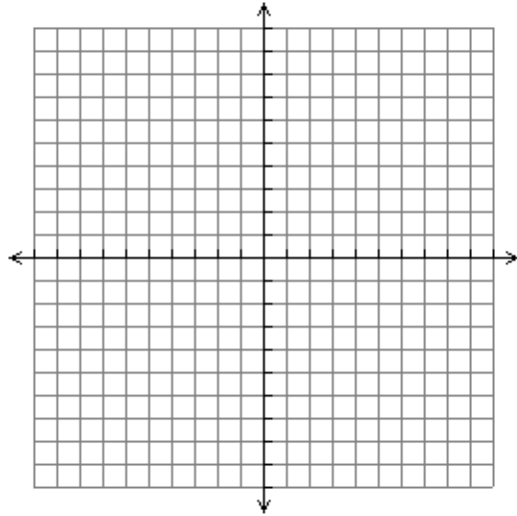
Worksheet 16 – Linear Inequalities

Graph each linear inequality.

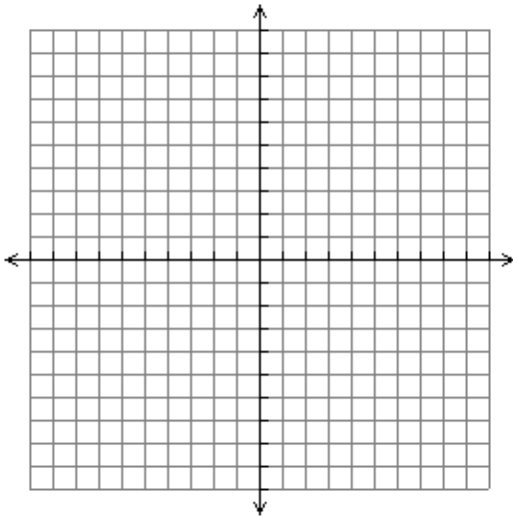
1. $x + 2y \leq \frac{1}{2}$



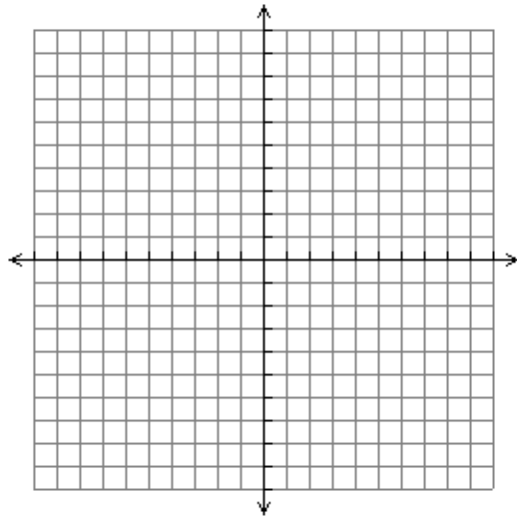
2. $x - 3y \geq 3$



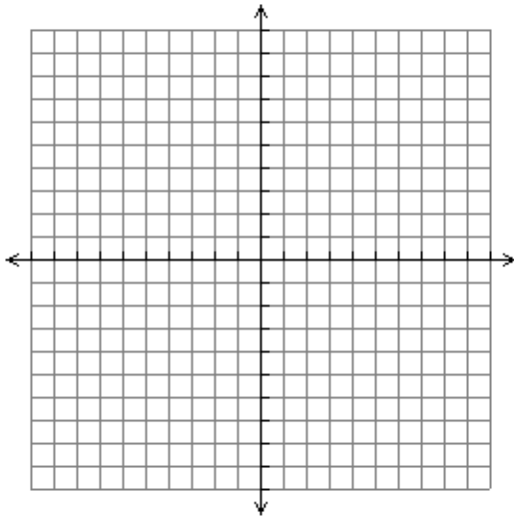
3. $2x + y < 5$



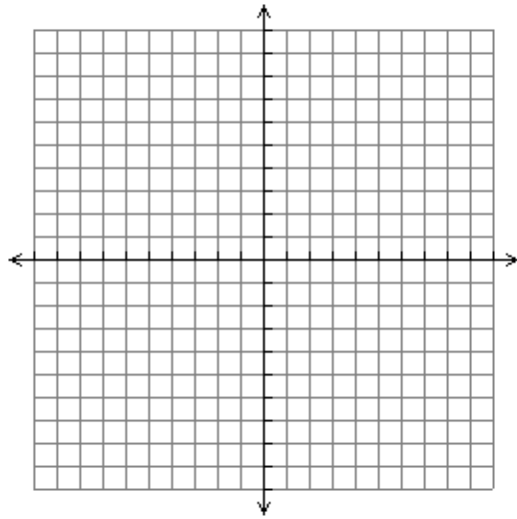
4. $2x - 3y < 12$



5. $4x - y \leq 4$

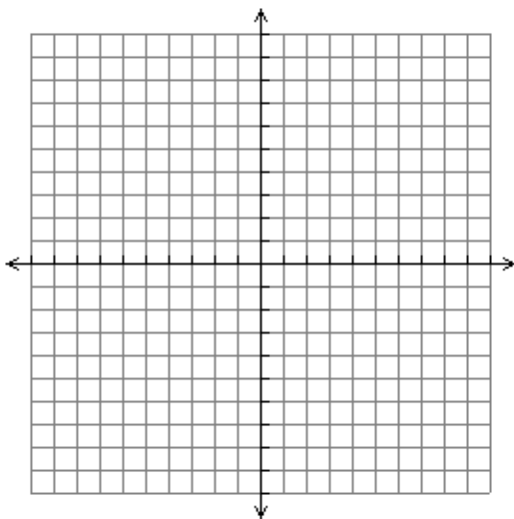


6. $3x - 5 > 10$



Solve by graphing.

7. $x + y \leq 2$
 $2x + 3y \leq 3$



8. $3x - y < 2$
 $-4 + y < 5$

