

Accelerated Algebra 1 & Geometry Summer Work

I hope you have a great summer. In an effort to jumpstart your year in math class next year, it is imperative that you review some math skills this summer as this will be a challenging and fun class. This packet includes review problems that you will need to know before the school year begins. These are concepts that were covered in your 7th or 8th grade math classes. *I will collect these problems on the first day of school.* They may be graded for accuracy. You will have a quiz over this material during the first week of school.

If you have any questions, please reference the websites listed below that can help you if needed. Start your year off on the right track by completing these problems before school starts! Once again, the packet is due when you walk through the door the first day of class. I look forward to seeing you in August!

Please feel free to email me with any questions.

Mrs. Thompson

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DUE 8/5/2019

Systems Resources:

<http://cstl.syr.edu/fipse/algebra/unit5/subst.htm>

<http://www.brightstorm.com/math/algebra/solving-systems-of-equations/solving-systems-of-equations-using-elimination/#>

Solving Equations Resources:

<http://regentsprep.org/Regents/math/ALGEBRA/AE2/LSolvEq.htm>

Functions Resources:

<http://regentsprep.org/Regents/math/ALGEBRA/AP3/LFunction.htm>

Radicals Resources:

<http://regentsprep.org/Regents/math/ALGEBRA/AO1/Laddsubt.htm>

Exponents Resources:

<http://www.coolmath.com/algebra/01-exponents/06-exponent-rules-putting-rules-1-4-together-01.htm>

Linear Equations Resources:

<http://www.coolmath.com/algebra/08-lines/06-finding-slope-line-given-two-points-01.htm>

Parallel Lines and Transversals Resources:

<http://www.studyzone.org/mtestprep/math8/g/8parallelanglepairs1.cfm>

Pythagorean Theorem Resources:

<http://www.mathsisfun.com/pythagoras.html>

Know the following terms.

- | | | | |
|-----------------------|---------------------------|-----------------------------|----------------------------------|
| a. variable | g. at least | m. parallel lines | r. alternate interior \angle s |
| b. rational numbers | h. function | n. transversal | s. alternate exterior \angle s |
| c. irrational numbers | i. recursive formula | o. supplementary \angle s | t. same-side interior \angle s |
| d. real numbers | j. average rate of change | p. complementary \angle s | u. vertical angles |
| e. integers | k. Pythagorean Theorem | q. corresponding \angle s | |
| f. at most | l. hypotenuse | | |

For #1–3, Evaluate each algebraic expression. Do not write answers in decimal form. Show your work!

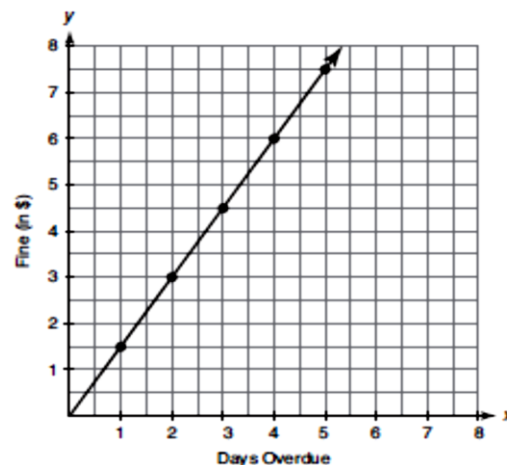
1. $n^2 - 25$ a) when $n = -10$ b) when $n = 1/2$

2. $\frac{-7d + 14}{2}$ a) when $d = -2$ b) when $d = 6/7$

3. $2\sqrt{x} - x$ a) when $x = 16$ b) when $x = 1/4$

4. Write an algebraic expression for the situation. Define the variable, then evaluate the expression for the amount given. Andrea wants to buy a photo book from an online photo printing service. The book costs \$14.98 plus \$0.39 for each photo printed in the book. How much will she pay if she wants to have 35 photos in the book?

5. Use the graph at the right to answer the following questions. What will the fine be for a book that is
 a) 3 days overdue? b) 10 days overdue?



6. Simplify each of the following fractional expressions without a calculator. Show your work!

- a) $\frac{1}{2} + \frac{3}{5}$ b) $\frac{4}{9} \cdot \frac{3}{8}$ c) $4 \div \frac{1}{2}$ d) $\frac{5}{8} - \frac{7}{4}$ e) $\frac{3}{10} + \frac{5}{2} - \frac{1}{4}$

For #7–12, Solve the equation for x. Show your work!

7. $-x - 20 = 14$

8. $13 - \frac{x}{7} = 6$

9. $\frac{2x}{7} = 8$

10. $3(2x + 7) - 3x = 18$

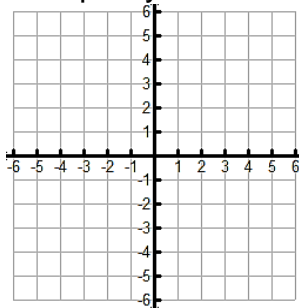
11. $-14 = -2(5 - x) + 16$

12. $\frac{3}{5}x - \frac{7}{10} = -\frac{2}{5}$

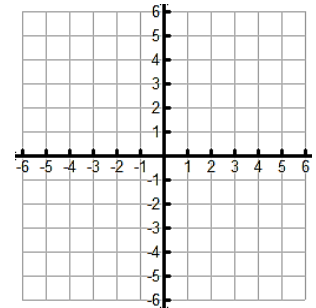
13. Solve the inequality: $21 - 9x \geq -6$

14. Graph each linear inequality.

a) $y \geq -3x + 4$

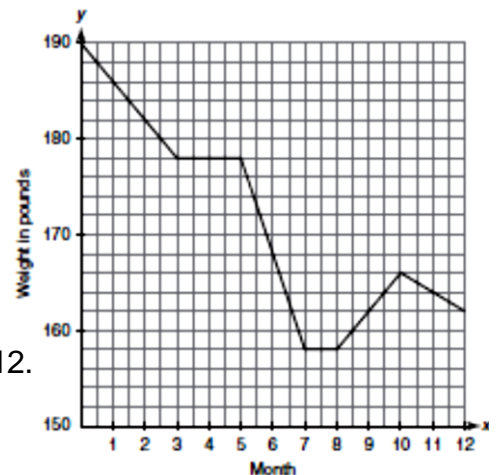


b) $5x - 3y < -15$



15. Answer the questions about the graph at the right which represents a dieter's weight loss over a year's period.

- a) Describe what happens between months 3 and 5.
- b) Circle where the graph increases and interpret the meaning.
- c) During which months did the dieter lose weight the fastest?
- d) Find the rate of change that occurs between months 10 and 12.



16. Identify the slope and y-intercept of each of the linear equations.

a) $y = -2x - 8$

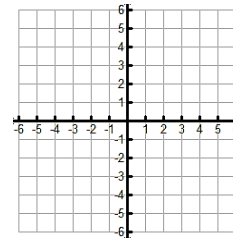
b) $y = 3$

c) $x = 9$

d) $y = x$

e) $2x + 3y = 5$

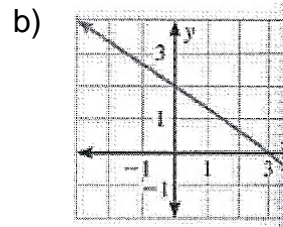
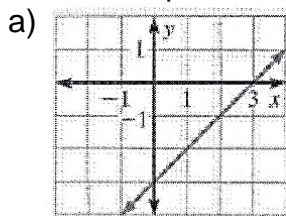
17. Identify the x-intercept and y-intercept of $3x - 4y = 12$.
Then graph the equation.



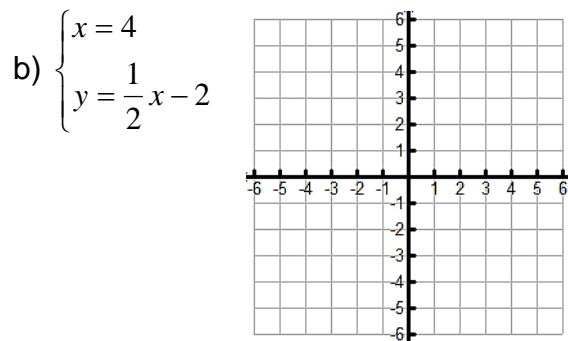
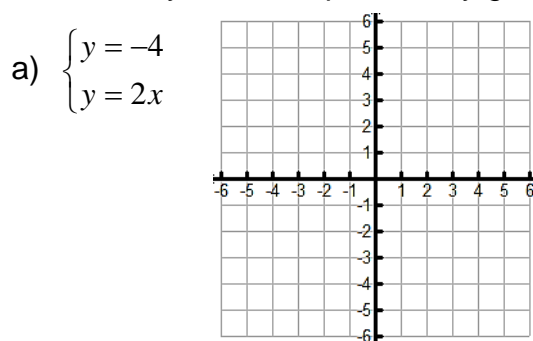
18. Write the equation for a line that has a slope of -2 and passes through the point $(4, 7)$.

19. Write the equation of the line given the points $(3, 25)$ and $(4, 31)$.

20. Write an equation for the graphed line.



21. Solve the system of equations by graphing. Remember to write your answer as an ordered pair.



22. Solve the system of equations using the substitution method.

a)
$$\begin{cases} 9x + y = 16 \\ y = 7x \end{cases}$$

b)
$$\begin{cases} 2x + 4y = -32 \\ -3x + y = 6 \end{cases}$$

23. Solve the system of equations using the elimination method.

a)
$$\begin{cases} x + y = 97 \\ x - y = 39 \end{cases}$$

b)
$$\begin{cases} -2x - 5y = 49 \\ 4x + 3y = 35 \end{cases}$$

24. Identify the parts of the expression $5x^4$. base _____, coefficient _____, exponent _____

25. Simplify each expression

a) $(m^4)^2$

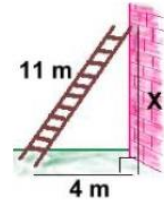
b) $(2x^3y)^4$

c) $a^{-3}b^{-2}$

d) $\frac{1}{2x^{-5}}$

Pythagorean Theorem:

26. How far up a wall will an 11-meter ladder reach, if the foot of the ladder must be 4m from the base of the wall?



27. If two sides of a right triangle are 3 and 4, find the length of the hypotenuse. These three sides lengths are called a Pythagorean Triple. Find another example of a Pythagorean Triple.

Parallel Lines, Transversals and Angles:

For #28–39, In the diagram, lines m , n , and p are parallel ($m \parallel n \parallel p$) and line t is a transversal.

28. Name a pair of corresponding angles. _____

29. Name a pair of alternate interior angles. _____

30. Name a pair of alternate exterior angles. _____

31. Name a pair of same-side interior angles. _____

32. Name a pair of corresponding angles. _____

33. Name a pair of vertical angles. _____

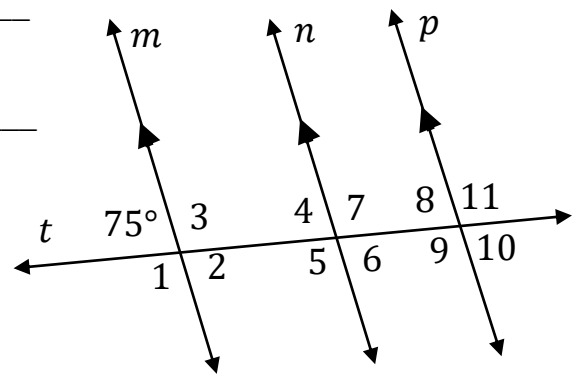
34. Name a pair of supplementary angles. _____

35. Find the measurement of $\angle 4$. _____

36. Find the measurement of $\angle 5$. _____

37. Find the measurement of $\angle 11$. _____

38. If the $m\angle 2 = 2x^\circ$, find the value of x .



39. If the $m\angle 3 = (4y - 7)^\circ$, find the value of y .

40. Write at least two questions you have for me about this math class.
