

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 concepts were covered in your 7th or 8th grade math classes. There will be a pre-assessment over this material at the beginning of the school year.

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. I look forward to seeing you in August!

Please feel free to email me with any questions.
Mrs. Thompson
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Systems Resources:

<https://www.coolmath.com/algebra/12-2x2-systems-of-equations>
<http://www.brightstorm.com/math/algebra/solving-systems-of-equations/solving-systems-of-equations-using-elimination/#>

Exponents Resources:

<https://www.coolmath.com/algebra/01-exponents>

Linear Equations Resources:

<https://www.coolmath.com/algebra/06-solving-equations>

Pythagorean Theorem Resources:

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

Know the following terms.

variable	function	real numbers	Pythagorean Theorem	supplementary \angle s
equation	slope	integers	hypotenuse	complementary \angle s
at most	x-intercept	rational numbers	parallel lines	vertical angles
at least	y-intercept	irrational numbers	perpendicular lines	

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

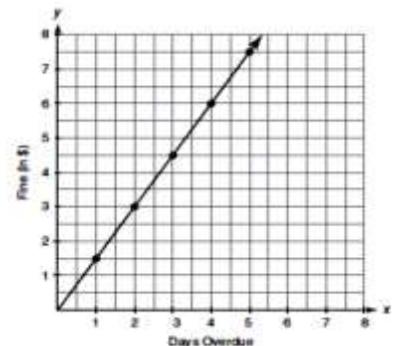
1. $n^2 - 25$ a.) when $n = -10$ b.) when $n = \frac{1}{2}$

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

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

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 #7–9, Solve the equation for x. Show your work!

7. $-x - 20 = 14$ 8. $13 - \frac{x}{7} = 6$ 9. $\frac{2x}{7} = 8$

For #10–12, Solve the equation for x. Show your work!

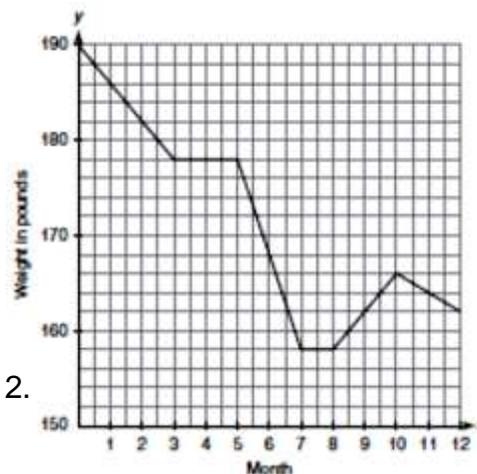
10. $3(2x + 7) - 3x = 18$

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

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

13. 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.



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

a) $y = -2x - 8$

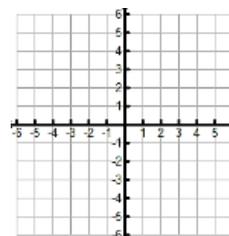
b) $y = 3$

c) $x = 9$

d) $y = x$

e) $2x + 3y = 5$

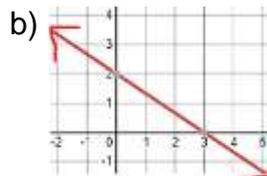
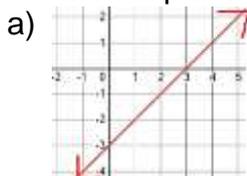
15. Identify the x-intercept and y-intercept of $3x - 4y = 12$. Then graph the equation.



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

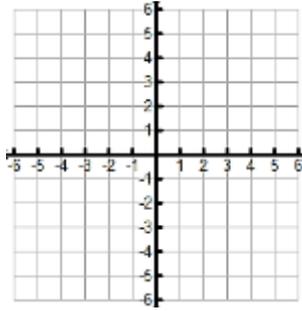
17. Write the equation of the line given the points $(3, 25)$ and $(4, 31)$. Show your work.

18. Write an equation for the graphed line.

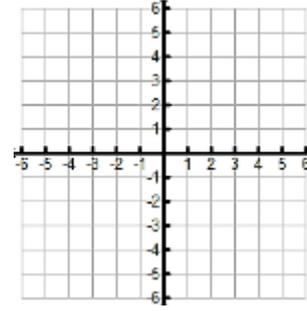


19. Solve the system of equations by graphing. Remember to write your answer as an ordered pair.

a) $\begin{cases} y = -4 \\ y = 2x \end{cases}$



b) $\begin{cases} x = 4 \\ y = \frac{1}{2}x - 2 \end{cases}$



20. Solve the system of equations using the **substitution method**. Show your work!

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

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

21. Solve the system of equations using the **elimination method**. Show your work!

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

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

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

23. Simplify each expression. Recall: simplified expressions contain only positive exponents.

a) $(m^4)^2$

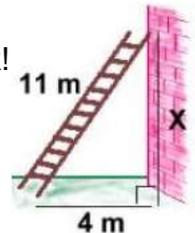
b) $(2x^3y)^4$

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

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

Pythagorean Theorem:

24. How far up a wall will an 11-meter ladder reach, if the foot of the ladder must be 4 m from the base of the wall? Round to the nearest hundredth. Show your work!



25. 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.