Review For Students Entering Algebra 2

Salem County
Vocational Technical School District
SCVTS

Dear Student,

You are receiving this summer packet as a review of previously covered math topics needed to be successful in the upcoming math class you will be taking in the 2018-19 school year. The SCVTS Math Department requires that students complete this packet and bring it, with work shown, to school on the first day. Students are requested to use pencil, and show their work in the packet or on lined paper to accompany the packet. The packet will be reviewed, and there will be a test on the material in the packet on the fourth day of the semester. The Math Department recommends that students in Algebra 1 and Geometry have the TI-30XS scientific calculator, and students in Algebra 2 and above have a TI-83 or TI84 graphing calculator.

In addition to the examples shown in the packet, you are encouraged to use the many resources available at the following websites:

https://www.khanacademy.org

http://www.purplemath.com

http://www.mathisfun.com

https://www.desmos.com is a free online graphing calculator also available as a free mobile app for most smart phones.

http://www.youtube.com/user/profrobbob is a YouTube channel featuring video tutorials for a variety of high school level mathematics

Using the search engine on YouTube will also result in plenty of video tutorials that may be useful as well.

Students may turn in the packet early by dropping it off in the main office at CTHS.

Any questions may be directed via email to any of the following teachers in the math department. For incoming freshman please contact Nicole Kopp or Eric Lockwood.

Nicole Kopp	nkopp@scvts.org
Jessica Lutes	jlutes@scvts.org
Eric Lockwood	elockwood@scvts.org
Jen Roberts	jroberts@scvts.org
Eric Walter	ewalter@scvts.org

Grading Criteria:

The completion of the packet will be counted as **two homework grades**. If it is not turned in by the first day of school, there will be a 10 point late penalty per day, and will not be accepted after the first week of the semester. The packet will be graded based on the percentage completed. To avoid earning a 0, students should show all their work, and complete at least half of the math packet. As a reminder, homework is counted as 20%, and tests are worth 40% of the marking period grade.

Parent/ Guardian Acknowledgement Statement

I understand that the purpose of the summer packet is for my child to review the topics they have already mastered in previous math classes and therefore will be prepared to take the class they are currently enrolled in.

_____

(Parent/Guardian Signature)

Date

Algebra 1 Skills Needed to be

Successful in Algebra 2

A. Simplifying Polynomial Expressions

Objectives: The student will be able to:

- Apply the appropriate arithmetic operations and algebraic properties needed to simplify an algebraic expression.
- Simplify polynomial expressions using addition and subtraction. • Multiply a monomial and polynomial.

B. Solving Equations

Objectives: The student will be able to:

- Solve multi-step equations.
- Solve a literal equation for a specific variable, and use formulas to solve problems.

C. Rules of Exponents

Objectives: The student will be able to:

- Simplify expressions using the laws of exponents.
- Evaluate powers that have zero or negative exponents.

D. Binomial Multiplication

Objectives: The student will be able to:

- Multiply two binomials

E. Factoring

Objectives: The student will be able to:

- Identify the greatest common factor of the terms of a polynomial expression.
- Express a polynomial as a product of a monomial and a polynomial.
- Find all factors of the quadratic expression $ax^2 + bx + c$ by factoring.

F. Radicals

Objectives: The student will be able to:

- Simplify radical expressions

G. Scatter Plots and Trend Lines

Objectives: The student will be able to:

- Make a scatter plot, find a trend line, and use it to make predictions.

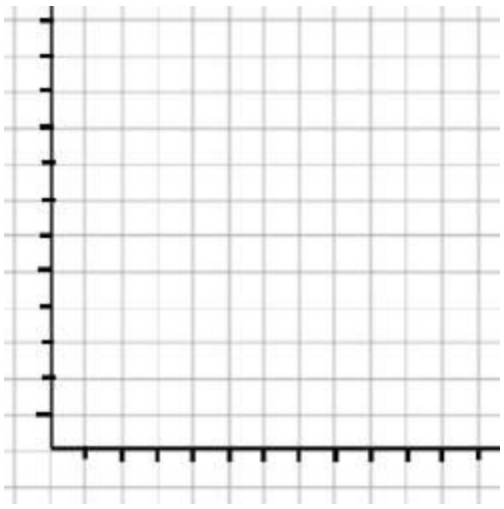
H. Solving Systems of Equations

Objectives: The student will be able to:

- Solve two variable systems algebraically by any method

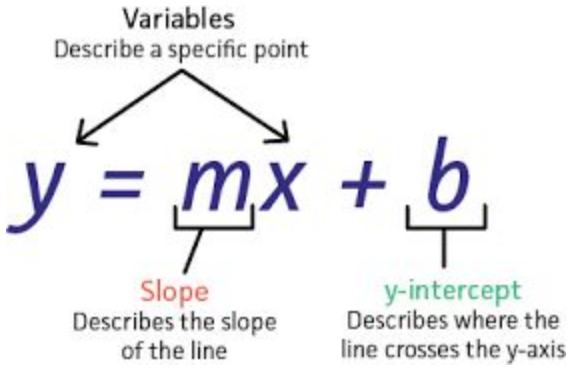
G. Scatter Plots and Trend Lines

a. Create a scatter plot of the data by plotting the points on a graph (treat each pairing of math and science scores as a coordinate).



b. Write an equation for a trend line by picking two points and using them to find the slope and y-intercept of your line (try to create a line that has just about the same amount of points above and below it).

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$



c. Based on your trend line, if a student scored an 82 on his math test, what would you expect his science test score to be? Explain how you determined your answer. Use words, symbols, or both.

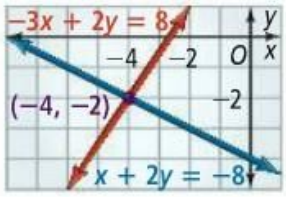
d. Based on your trend line, if a student scored an 53 on his science test, what would you expect his math test score to be? Explain how you determined your answer. Use words, symbols, or both.

H. Solving Systems of Equations

To solve a system of equations, we can use one of three methods: graphing, substitution, and or elimination.

I. Reviewing Solving by Graphing

What is the solution of the system? $\begin{cases} -3x + 2y = 8 \\ x + 2y = -8 \end{cases}$



Method 1 Graph the equations. The point of intersection appears to be $(-4, -2)$.

Check by substituting the values into both equations.

$-3x + 2y = 8$ $\qquad$ $x + 2y = -8$

$-3(-4) + 2(-2) = 8$ ✔ $\qquad$ $-4 + 2(-2) = -8$ ✔

Both equations are true so $(-4, -2)$ is the solution of the system.

II. Reviewing Solving by Substitution

What is the solution of the system of equations? $\begin{cases} 3x + 4y = 12 \\ 2x + y = 10 \end{cases}$

Step 1

Solve one equation for one of the variables.

$2x + y = 10$

$y = -2x + 10$

Step 2

Substitute the expression for y in the other equation. Solve for x.

$3x + 4y = 12$

$3x + 4(-2x + 10) = 12$

$3x - 8x + 40 = 12$

$x = 5.6$

Step 3

Substitute the value for x into one of the original equations. Solve for y.

$2x + y = 10$

$2(5.6) + y = 10$

$11.2 + y = 10$

$y = -1.2$

The solution is $(5.6, -1.2)$.

III. Reviewing Solving by Elimination

PRACTICE SET 9

Solve each system using any method (by graphing, substitution, or elimination)

1.

2.

$$\begin{cases} 2x + 3y = 7 \\ -2x + 5y = 1 \end{cases}$$

3.

4.

5.

6. $$\begin{cases} 3x + 4y = 10 \\ 2x + 3y = 7 \end{cases}$$

Coordinate Planes for Problem Set 9 (if needed)