Geometry Summer Packet Instructions

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 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 Wednesday, September 12th* (can be changed at discretion of teacher). 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 TI-84 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 freshmen, please contact Nicole Kopp or Eric Lockwood.

Nicole Kopp	nkopp@scvts.org
Jessica Crim	jcrim@scvts.org
Eric Lockwood	elockwood@scvts.org
Jenn 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 Monday, September 10th. 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.

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.

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(Parent/Guardian Signature)   Date

1. LINEAR EQUATIONS – Solve for the value of the variable.

a. $7x = -35$

b. $60 = 6y + 12$

c. $\frac{4}{5}z = -20$

d. $5 = -\frac{m}{3}$

e. $\frac{2n-5}{3} = \frac{n+7}{2}$

f. $12 = 3k - 9$

g. $x + 9x = 5$

h. $4y + 23 = 9y - 7$

i. $(4z + 5) + (5z + 40) = 180$

j. $2(4k + 4) = k + 1$

k. $3(180 - m) = 2(90\text{-}m)$

l. $6(n - 2) - 2(n - 7) = 29$

2. RADICAL EXPRESSIONS - Simplify the following.

a. $\sqrt{81}$ b. $\sqrt{256}$ c. $\sqrt{64}$ d. $\sqrt{25}$

e. $\sqrt{144}$ f. $\sqrt{225}$ g. $\sqrt{36}$ h. $\sqrt{49}$

i. $\sqrt{100}$ j. $\sqrt{169}$ k. $\sqrt{16}$ l. $\sqrt{121}$

m. $\sqrt{4}$ n. $\sqrt{196}$ o. $\sqrt{9}$ p. $\sqrt{289}$

q. $\sqrt{324}$ r. $\sqrt{400}$ s. $\sqrt{361}$ t. $\sqrt{441}$

3. RATIONAL EXPRESSIONS - Simplify the following.

a. $\dfrac{5a}{a}$ b. $\dfrac{b}{3b}$ c. $\dfrac{5cd}{10c^2}$

d. $\dfrac{\pi r^2 h}{2\pi r}$ e. $\dfrac{9x-6y}{3}$ f. $\dfrac{-18h^3 k}{12hk}$

4. QUADRATIC EQUATIONS – Solve by simplifying and then taking the square root.

a. $a^2 + 3^2 = 4^2$

b. $b^2 + 5^2 = 10^2$

c. $h^2 - 144 = 25$

5. EVALUATING FORMULAS – Evaluate each of the following for the indicated values of the variables. Express your final answers in simplified forms.

a. $\frac{x+5}{y-2}$ when x = -2 and y = -4

b. $\sqrt{(x-5)^2 + (y-1)^2}$ when x = 8 and y = -3

c. $P = a + b + c$ find P when a = 11.5, b = 7.2, and c = 9.9

d. $c = \sqrt{a^2 + b^2}$ find c when a = 15, and b = 20

6. COORDINATE PLANE

a. What is the x-coordinate of point A?

b. What is the y-coordinate of point F?

c. Which points lie on the x-axis?

d. Which points lie in Quadrant III?

e. Which points lie on a vertical line through R?

f. Find the slope of the segment joining H and E.
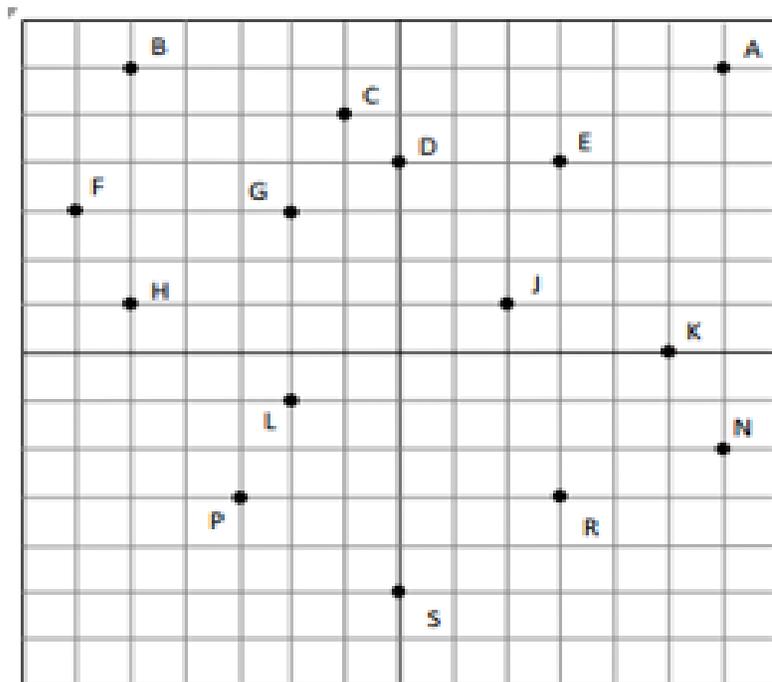
7. GRAPHING LINEAR EQUATIONS – Graph each of the following lines. Provide the coordinates of the x- and y-intercepts.

a. $y = 2x + 3$
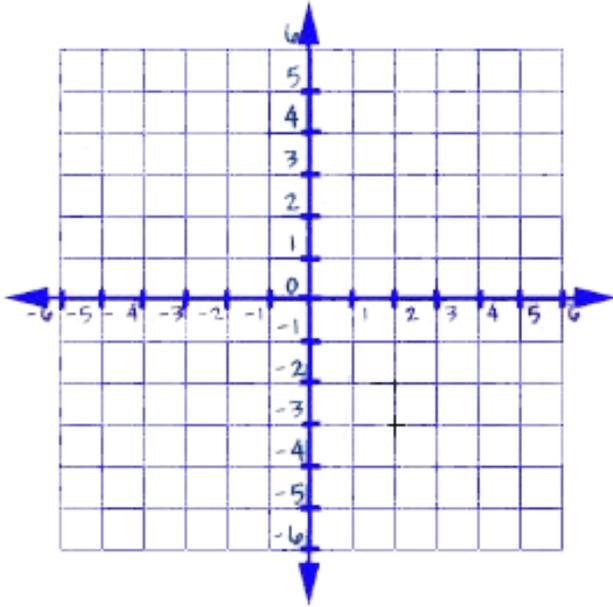
b. $y = \frac{3}{5}x - 2$
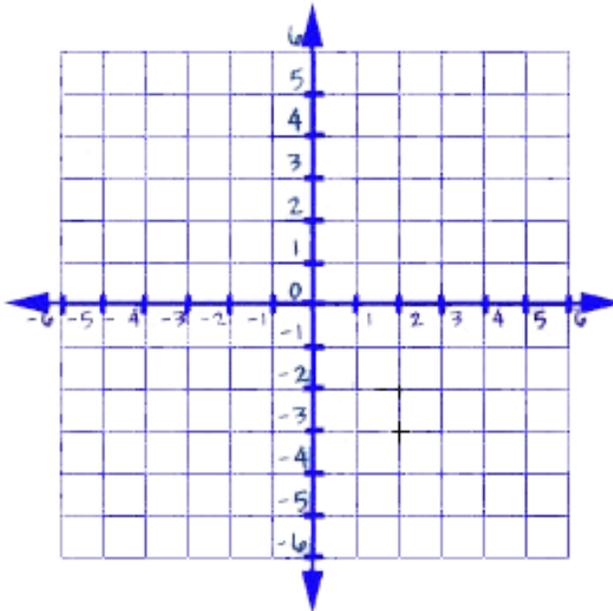
c. 2x + 3y = 6
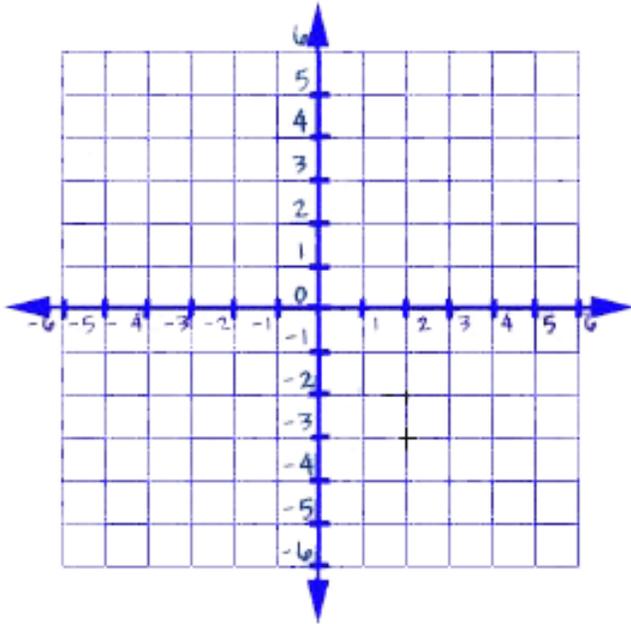
8. WRITING LINEAR EQUATIONS – Write an equation for the line with the given features.

a. having a slope of 3 and a y-intercept of 17.

b. having a slope of -2 and crossing the x-axis at 12.

c. crossing the y-axis at 8 and the x-axis at -18

d. having a slope of $\frac{-2}{3}$ and passing through the point (24,40)

9. SYSTEMS OF EQUATIONS - Solve for the (x, y) coordinates of the intersection of the two lines.

a. $y = 2x + 5$

   $3x - y = 4$

b. $x = 8 + 3y$

   $2x - 5y = 8$

c. $3x + y = 19$

   $2x - 5y = -10$

d. $2x + 3y = 4$

   $5x + 4y = 3$

10. PROPORTIONS – Solve each proportion and leave your answer as a fraction in lowest form.

a. $\dfrac{6}{2} = \dfrac{4}{p}$

b. $\dfrac{4}{k} = \dfrac{8}{2}$

c. $\dfrac{7}{6} = \dfrac{5}{x}$

d. $\dfrac{n}{4} = \dfrac{8}{7}$

e. $\dfrac{5}{3} = \dfrac{x}{4}$

f. $\dfrac{6}{5} = \dfrac{2}{5n}$

g. $\dfrac{10}{p+2} = \dfrac{4}{3}$

h. $\dfrac{4}{6} = \dfrac{8}{x-1}$

i. $\dfrac{m}{8} = \dfrac{m+7}{9}$

j. $\dfrac{n}{n+1} = \dfrac{3}{5}$

k. $\dfrac{9}{4} = \dfrac{r-10}{r}$
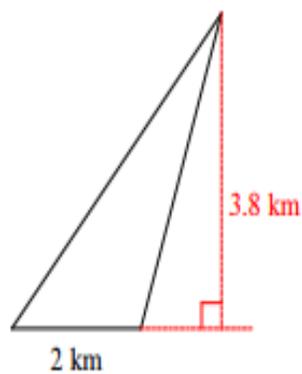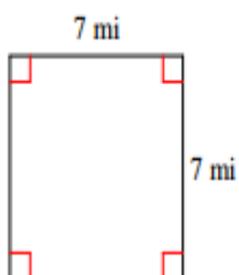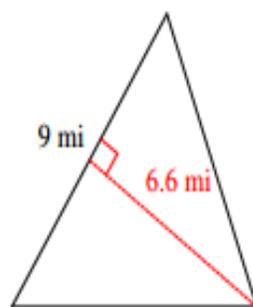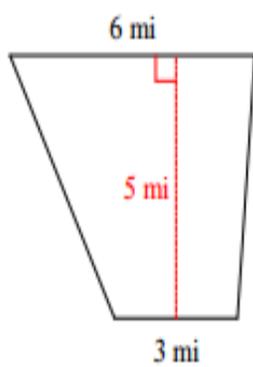
l. $\dfrac{x+6}{x} = \dfrac{10}{7}$

11. AREA – Find the Area of the following figures.

Area of a Square/Rectangle = base * height
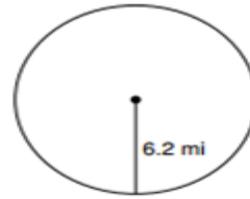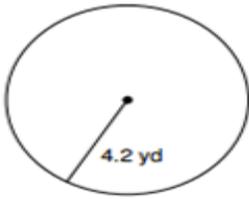
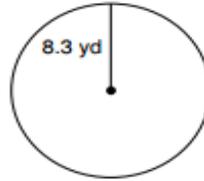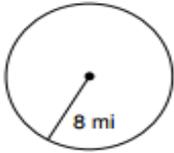Area of a triangle = $\frac{1}{2}$(base*height)

Area of a trapezoid = = $\frac{1}{2}$(base 1 + base 2)*height

5.1 m

6 m

9 yd

6.4 yd

5.7 m

8 m

2 yd

3.1 yd

6 mi

5 mi

3 mi

9 mi

6.6 mi

7 mi

7 mi

3.8 km

2 km

1 yd

2 yd

4.8 yd

8 yd

29.4 ft
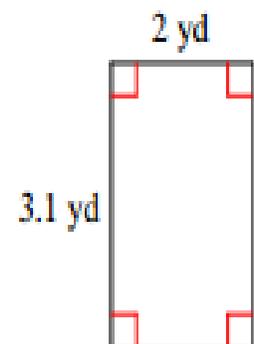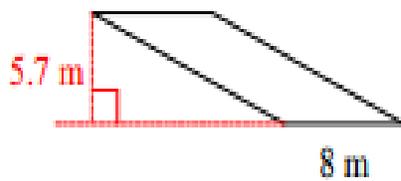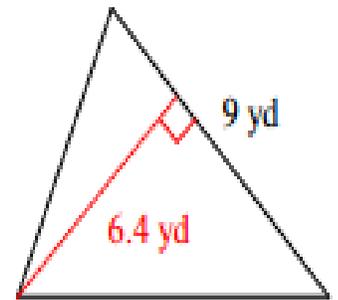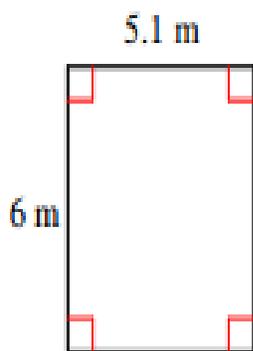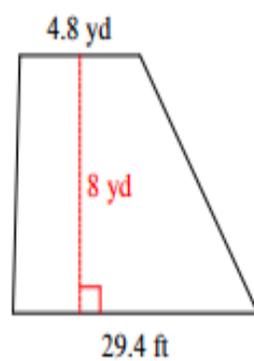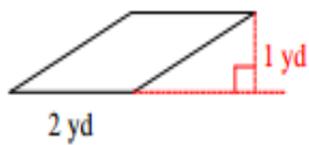
12. CIRCLES – Find the circumference of the following circles.

Circumference a Circle = 2πr or dπ

8 mi

8.3 yd

4.2 yd

6.2 mi

Find the Area of the following circles.

Area of a Circle = πr²

4.2 yd

6.2 mi

8 mi

8.3 yd
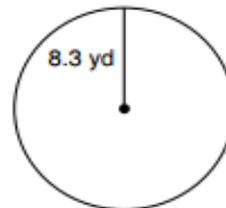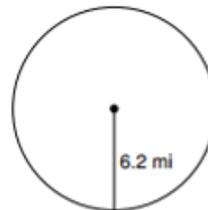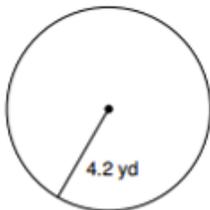
Matching to Review Vocabulary:

___Point

___Midpoint

___Line

___Plane

___Collinear

___Angle

___Obtuse triangle

___Segment

___Postulate

___Cartesian Plane

___Ray

___Perpendicular lines

___Complementary angles

___Opposite rays

___Space

___Right angle

___Scalene Triangle

___Intersection

___Theorem

___Coplanar

___Vertex

___Acute Triangle

___Equilateral Triangle

___Congruent figures

___Supplementary angles

___Angle bisector

___Right Triangle

___Acute angle

___Parallel lines

a. two or more points that are on the same plane
b. lines that do not intersect, and are always the same distance apart
c. two angles whose measures have a sum of 180°
d. a location in space, modeled by a dot on a piece of paper

e. lines that intersect at an angle of 90°
f. a triangle whose largest angle is a right angle
g. part of a line between two points
h. an angle that measures exactly 90°
i. connects two points via the shortest distance and continues indefinitely (forever) in both directions
j. a triangle whose largest angle is larger than 90°
k. the point at which two line segments or rays intersect and form an angle
l. an angle that measures less than 90°
m. the point(s) or lines that are common to the geometric figures that meet or cross each other
n. a five-sided equilateral figure
o. the point that is the center point of a segment
p. a triangle whose largest angle measures less than 90°
q. two angles whose measures have a sum of 90°
r. a perfectly flat, endless surface
s. a piece of a line that starts at a point and continues forever in one direction
t. two or more points that are on the same line
u. a triangle with all of its angles are congruent and all of its sides are congruent
v. the ray that divides an angle into two equal angles
w. two figures that have the same shape but are not the same size
x. another name for the coordinate plane, named after mathematician Rene Descartes
y. geometric figure formed by two rays with the same endpoint
z. figures that have the same shape and same size
aa. an angle whose measure is more than 90° and less than 180°
bb. a rule or statement that is accepted as true without proof
cc. a triangle with no sides congruent and no angles congruent
dd. two rays with the same endpoint that form a line
ee. the set of points in three dimensions
ff. a conjecture that is proven

Cite Real Life Examples

Circle	Square
Triangle	Rectangle
Cube	Sphere
Cylinder	Parallel Lines
Perpendicular Lines	Rectangle Prism