

Geometry/Trigonometry and Geometry/Trigonometry H *Summer Assignment*

This summer assignment has been designed to help your transition into the Geometry/Trigonometry course and help us assess your strengths and weaknesses. Although Geometry is quite different from Algebra, there is still some material you will need to retain from past years. The questions included in the packet are among those that we would consider "pre-requisite" for students entering this course. Because it would be of benefit to you to determine how much you remembered (and how much you forgot) after a number of weeks away from a math course, the Mathematics Department requests that you do not work on this packet until the beginning of August.

While there may be some questions that present a struggle, please feel free to get assistance from a textbook or from an individual that can help, but *only after you have attempted the problem on your own to the best of your abilities*. Do not worry too much if there are a couple of questions that give you problems. Do your best and work hard. **This packet is due in class on Wednesday, September 7th.**

Your teacher will be collecting the packet on that date. Please show all work and answers on the packet itself, and include any paper on which you may have done additional work. Thank you.

1.) Solve the following equations:

a.) $3(180 - y) = 2(90 - y)$

b.) $\frac{3 - 2m}{5} = \frac{3m + 5}{4}$

c.) $\frac{x}{x+1} = \frac{2}{5}$

d.) $\frac{k-3}{2} = \frac{5}{2k+2}$

2.) Complete the following statements:

a.) If $\frac{a}{b} = \frac{4}{5}$ then $10a =$ _____

b.) If $\frac{c}{d} = \frac{4}{9}$ then $\frac{2d}{c} =$ _____

c.) If $\frac{e}{f} = \frac{g}{8}$ then $\frac{g}{e} =$ _____

d.) If $\frac{x}{y} = \frac{2}{3}$ then $\frac{x+y}{y} =$ _____

3.) Simplify each of the following. Express your answer in simplest form and rationalize all denominators.

a.) $\sqrt{96}$

b.) $(5\sqrt{12}) \cdot (2\sqrt{18})$

c.) $\sqrt{\frac{8}{75}}$

d.) $\frac{\sqrt{15}}{3\sqrt{45}}$

4.) For the given points, find the *midpoint* of the segment joining the points and the *length* of the segment joining the points.

a.) $A(5,4)$ and $B(1,-2)$

b.) $P(-2,-2)$ and $Q(5,7)$

5.) A box with rectangular sides measures 9 cm by 6 cm by 5 cm.

a.) What is the volume of the box?

b.) What is the surface area of the box?

6.) Find the perimeter of a triangle if one side is 11 centimeters, another side is one-fifth the perimeter, and the third side is one-fourth the perimeter.

7.) Determine whether the following statements are True or False. If the statement is false, explain why or provide an example to show why it is false.

a.) If a shape is a square, then that shape is a quadrilateral.

b.) If a shape is a quadrilateral, then that shape is a square.

c.) If $ab < 0$ then $a < 0$.

d.) If $x^2 = 36$ then $x = 6$.

e.) If a number is divisible by 9, then it is divisible by 3 .

f.) If a number is divisible by 3, then it is divisible by 9 .

8.) If an angle A has a measure of 35° , then what is the measure of the angle that is

a.) complementary to angle A

b.) supplementary to angle A

9.) Recall that the sum of the measures of the three angles of a triangle is 180° .

The degree measures of two angles of a triangle are consecutive even integers. If the measure of the third angle is 22° more than the measure of the smallest angle of the triangle, what is the measure of each angle?

10.) Suppose the measure of angle A is twice the measure of angle B and is 1° less than the measure of angle C . If the sum of the measures of the three angles is at least 56° , what is the smallest possible measure of angle A ?

11.) Evaluate the following expressions for the given values of the variables. Simplify all answers.

a.) $\frac{1}{2}h(a+b)$ when $h=3$, $a=3\sqrt{2}$, and $b=7\sqrt{2}$

b.) $2s^2 + 4sh$ when $s=\sqrt{6}$ and $h=\frac{5}{2}\sqrt{6}$

12.) Solve each formula for the variable requested:

a.) $s = (n-2) \cdot 180$ for n

b.) $x^2 + y^2 = r^2$ for y

c.) $m = \frac{y+4}{x-2}$ for x

d.) $m = \frac{x+3}{x-4}$ for x

13.) Solve each of the following systems of equations using any method:

a.)
$$\begin{cases} 8x - y = 17 \\ 6x + y = 11 \end{cases}$$

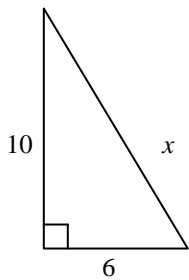
b.)
$$\begin{cases} 5x + 2y = 19 \\ 4y = 3x - 1 \end{cases}$$

c.)
$$\begin{cases} 3x - 2y = 9 \\ 4x + 3y = 11 \end{cases}$$

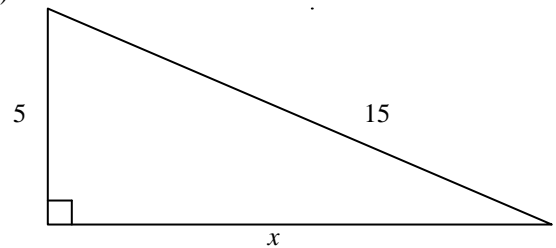
d.)
$$\begin{cases} \frac{y}{x-9} = \frac{4}{7} \\ \frac{x+y}{x-y} = \frac{5}{3} \end{cases}$$

14.) Find the length(s) of the missing side(s) in each diagram using the Pythagorean Theorem.

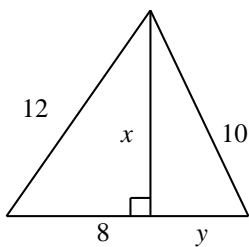
a.)



b.)



c.)



d.)

