Geometry Honors

Summer 2018 Packet

Dear Prospective Geometry Honors Students,

This packet has been put together to help you prepare and be successful in Geometry Honors. This is a rigorous course that will challenge your mind and encourage you to grow as a math student. We will be covering proofs, studying relationships of angles, writing equations of lines, solving and working with triangles, polygons and circles, and applying formulas to solve for unknown segments, angles, areas and volumes.

There are skills and concepts from previous courses that are essential for success in this Geometry Honors course. This packet contains problems that demonstrate these. It is important for you to make sure you fully understand these concepts and can demonstrate your understanding. Utilize online resources such as Kahn Academy or math tutorials on YouTube for extra guidance.

This summer assignment is due on the first day of class. You must show all work to receive full credit. Please make sure you have mastered the material in this packet, as there will not be much time to cover it during the course of the year. **You will be tested on this material on the third day of class!**

I look forward to getting to know you and to working with you this fall! If you have any questions, feel free to email me.

Sincerely,

Mrs. Kendra Pitkin
kpitkin@theproutschool.org

Please SHOW ALL work NEATLY in the space provided. Use a PENCIL and box in your answer.

I. Solve the following equations for x.

A) $2(x+5)=3(x-2)$	B) $180-x=3(90-x)$
C) $x(x-4)=(x-3)^2$	D) $3x(x-1)=(3x+2)(x-1)$

II. Solve the following system of equations by the method stated.

A) Substitution $\quad \begin{cases} y=5-2x \\ 5x-6y=21 \end{cases}$	B) Substitution $\quad \begin{cases} x-7y=13 \\ 3x-5y=23 \end{cases}$
C) Elimination $\quad \begin{cases} 3x+4y=-10 \\ 5x-2y=18 \end{cases}$	D) Elimination $\quad \begin{cases} 2x+3y=0 \\ 5x-2y=-19 \end{cases}$

III. Solve for the variable.

A) $V=\frac{1}{3}\pi r^2 h$; $\ h$	B) $A=\frac{1}{2}h(b_1+b_2)$; $\ b_1$

IV. Simplify the square root expressions.

*Rationalize the den: *Ex. $\sqrt{\dfrac{9}{2}} = \dfrac{\sqrt{9}}{\sqrt{2}} = \dfrac{3}{\sqrt{2}} \rightarrow \dfrac{3}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{3\sqrt{2}}{\sqrt{4}} = \dfrac{3\sqrt{2}}{2}$

A) $\sqrt{24}$	B) $\sqrt{300}$	C) $\sqrt{120}$	D) $\sqrt{\dfrac{1}{4}}$	E) * $\sqrt{\dfrac{5}{3}}$
F) $\sqrt{\dfrac{80}{25}}$	G) $\left(3\sqrt{8}\right)^2$	H) $\left(2\sqrt{3}\right)^2$	I) $2\sqrt{18}$	J) $5\sqrt{8}$

V. Solve for x. Assume x represents a positive number. Simplify your answer.

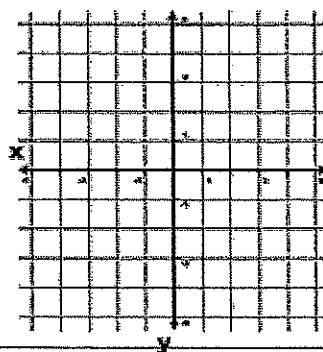|	
A) $x^2 + 4^2 = 5^2$	B) $1^2 + x^2 = 3^2$
C) $x^2 + 5^2 = (5\sqrt{2})^2$	D) $x^2 + (7\sqrt{3})^2 = (2x)^2$

VI. Solve the following proportions:

A) $\dfrac{2}{x-3} = \dfrac{6}{x-2}$	B) $\dfrac{10}{6x+7} = \dfrac{6}{2x+9}$

VII. Find the equation of each line in the form stated using the following description. Then graph the line.
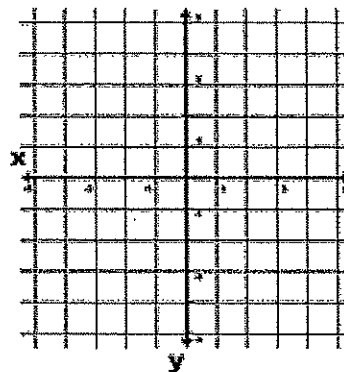
A) A line with a slope of 3 and contains the point (2, -1)

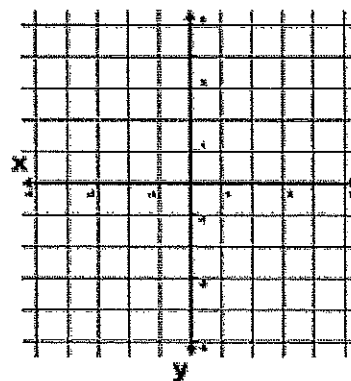   Standard Form: _____

B) The line containing (4, 2) and (-6, 12)

   Slope Intercept Form: _____

C) The line perpendicular to $y = -\frac{1}{2}x - 7$ and containing (1, 4)

   Point Slope Form: _____

VIII. Solve for x by factoring:

A) $x^2 - 13x - 30 = 0$

B) $2x^2 + 5x - 3 = 0$

C) $4x^2 - 9x + 2 = 0$

D) $12x^2 + 17x = -6$