

Summer Work Packet for Geometry Honors at WCHS

Well this is it, the moment you have all been waiting for! Can you handle the anticipation?! It's math homework during the summer! We want to officially welcome you to Geometry Honors. In the fall, we will embark on an exciting mission together. What better way to do that than to get your brains thinking mathematically?! This packet is full of stimulating math problems for you to enjoy over the summer. The purpose of this summer packet is to review the algebra and geometry topics you have already mastered in math to ensure your preparedness for Geometry Honors. An honors level course means we will cover the geometry curriculum at an enhanced level and you will be expected to use your prior knowledge and apply it to the geometric world next year. If you ask any former Geometry Honors student they will tell you how important it is that you have a strong foundation of Algebra I skills before beginning this class.

This packet contains many sections of material you should have seen before. You must complete the practice problems in each section and be prepared to turn them. It is expected that you have your packet completed and with you the first day of school. Time will not be spent in class going over these topics. There may be periodical quizzes throughout the year that review this material- they will be announced and planned as needed.

If you find yourself needing help with specific content in this packet, there are video links at the end of the digital copy of the summer review packet on our class websites at the bottom of this letter. The answers will be provided on the websites in August. Keep in mind your work is usually more important than the answer; show enough work for each problem to receive full credit and circle your final answer. If you have questions feel free to email us (kortiz@wacohi.net or jkeyes@wacohi.net) as we will check our email accounts periodically.

Required materials for this class include a compass, 6 inch rule, and a scientific calculator. The WCHS math department strongly recommends the TI-36X Pro.

We hope you are ready to gain some geometry skills and as well as life skills like cooperative work, perseverance, and learning from mistakes. This class takes hard work and determination but gives a great sense of accomplishment!

Have a wonderful summer!

Mrs. Keyes and Mrs. Ortiz

Mrs. Keyes' class website: <http://wchsmathrocks.weebly.com/>

Mrs. Ortiz's class website: mrs-ortiz.weebly.com

Algebra Review for GEOMETRY HONORS

Leave all answers as an EXACT answer. Do not round! This means you will have rational answers ($\frac{a}{b}$), radical answers (\sqrt{a}), and answers in terms of π ($a\pi$). In Geometry Honors you will be required to leave your answers as EXACT values unless you use right triangle trigonometry (SOH-CAH-TOA). That means 90+% of your answers will be exact answers. It is important to practice number sense for this reason.

Objective 1: Solving equations.

1) Solve each equation.

a) $-158 = 7 + 3(1 - 7x)$

b) $164 = 4 - 20n$

c) $-8(-2r - 3) = -36 + 6r$

d) $5 + 4(6m - 3) = -39 + 8m$

e) $-\frac{4}{n-5} = \frac{10}{n+11}$

f) $\frac{x+6}{x-12} = \frac{10}{2}$

g) $\frac{2}{3}x + \frac{1}{2}x = \frac{3}{4}$

h) $\frac{x}{2} + 1 = \frac{5}{4}$

2) Solve the literal equations for the variable specified.

a) $d = rt$; solve for t

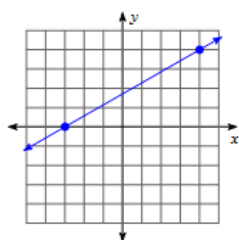
b) $P = 2w + 2l$; solve for w

c) $V = \frac{1}{3}\pi r^2 h$; solve for h

d) $y = \frac{c-ax}{b}$; solve for x

Objective 2: Linear equations.

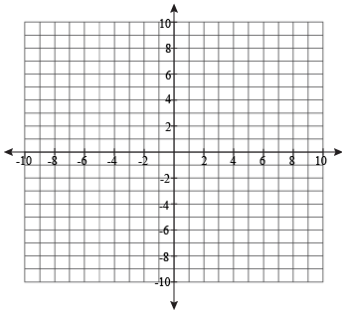
3) Find the slope of the line.



4) Graph the following equations on the coordinate planes provided. Be familiar with graphing any form of a line.

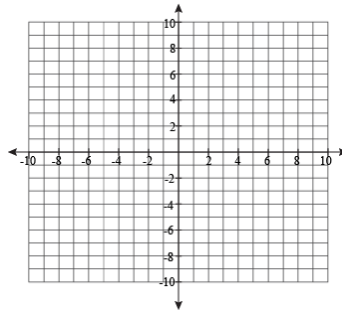
a) $y = \frac{2}{3}x - 5$

(This is slope-intercept form)



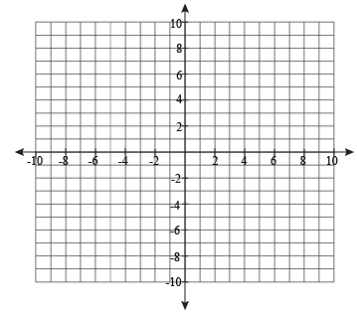
b) $4x - 6y = -24$

(This is standard form)



c) $y - 4 = -2(x + 4)$

(This is point-slope form)



5) Write the equation of the line in slope-intercept form using the given information.

a) slope = $\frac{3}{4}$; y-intercept is (0, -5)

b) slope = -3 and passes through (4, -3)

c) slope = $\frac{2}{3}$ and passes through (-3, 5)

d) passes through (-2, 4) and (0, -1)

Objective 3: Systems of Linear Equations

6) Solve each system of equations by the substitution method.

a) $y = 2x + 5$
 $3x - y = 4$

b) $8x + 3y = 26$
 $2x = y - 4$

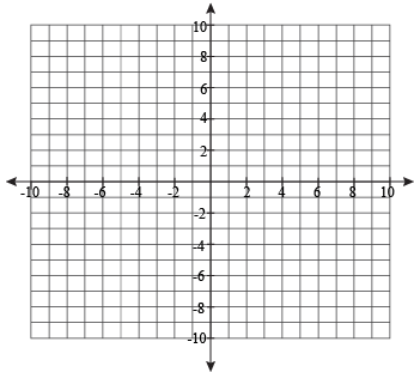
7) Solve each system of equations by the elimination method.

a) $3x + 4y = 9$
 $-3x - 2y = -3$

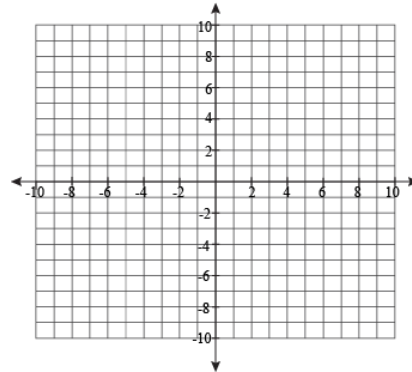
b) $4x - 6y = -26$
 $-2x + 3y = 13$

8) Solve each system of equations by the graphing method.

a) $y = -4x + 5$
 $y = \frac{5}{2}x - 8$



b) $x = -4$
 $y = 6$



Objective 4: Quadratic equations and expressions.

9) Factor the expression completely.

a) $v^2 - 19v + 90$

b) $5a^2 + 38a - 63$

c) $5p^2 - 4p$

d) $36x^2 + 68xy - 120y^2$

10) Solve the quadratic equation or proportion by factoring and using the zero product property. Hint: Use the AC method.

a) $x^2 + 6x + 8 = 0$

b) $x^2 + 5x + 6 = -x^2 - 3x$

c) $3x^2 + 7x - 8 = -10$

d) $2x^2 - 4x + 2 = 0$

e) $\frac{x+2}{5} = \frac{4}{x+1}$

f) $\frac{2}{x-3} = \frac{x-2}{6}$

11) Solve for x using the quadratic formula. Hint: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

a) $x^2 - 3x + 1 = 0$

b) $5x^2 + 2x - 2 = 0$

12) Solve the equation and express your answer as an EXACT value.

a) $3^2 + 4^2 = x^2$

b) $x^2 + 5^2 = 13^2$

c) $1^2 + x^2 = 3^2$

d) $x^2 + (7\sqrt{3})^2 = (2x)^2$

Objective 5: Radical Expressions

13) Simplify the radical expression completely. Leave your answer in simplest radical form.

a) $\sqrt{50}$

b) $\sqrt{600}$

c) $-2\sqrt{216pq^3r^5}$

d) $-3\sqrt{70x}$

e) $\sqrt{6} \cdot \sqrt{2}$

f) $\sqrt{3} \cdot \sqrt{3}$

g) $\frac{2\sqrt{4}}{\sqrt{64}}$

h) $\frac{2\sqrt{6}}{5\sqrt{27}}$

i) $5\sqrt{5} + 4\sqrt{5}$

j) $-\sqrt{18} + 2\sqrt{2}$

k) $\sqrt{13^2}$

l) $(2\sqrt{3})^2$

Objective 6: Simplify algebraic expressions.

14) Simplify each algebraic expression.

a) $(2x)^2$

b) $(-2x)^2$

c) $-(2x)^2$

d) $y(3y^2-5y-10)$

e) $(x+4)^2$

f) $(2x^2-3x)(-4x^2+5)$

g) $(x+3)(x-7)$

h) $\frac{8w}{2}$

i) $\frac{5x-10}{15}$

j) $\frac{x+6}{x^2-36}$

k) $\frac{33ab-22b}{11b}$

l) $\frac{5a+5b}{a^2-b^2}$

Objective 7: Distance Formula and Midpoint Formulas

15) For the pairs of points, find:

a) The distance between them.

b) The coordinate of the midpoint between them.

Note: These are equations you need to memorize and be ready to use.

$$\text{Distance Formula: } D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\text{Midpoint Formula: } M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

a) (0, -2) and (4, 1)

b) (6, -7) and (3, -5)

c) (5, -8) and (-8, 6)

d) (7, 3) and (-1, 4)

Resources:

Objective 1: Solving equations.

- For a review on solving equations and solving literal equations view the video at learnzillion.com and use the quick code LZ3321.

Objective 2: Linear Equations

- To review how to find the slope of a line given a graph watch the video at learnzillion.com and enter the quick code LZ2452.
- To review how to find slope between two points watch the video at learnzillion.com and enter the quick code LZ3462.
- To review how to find the slope of a line given the equation of the line watch the video <https://www.youtube.com/watch?v=tonrg08NlIk> from YouTube.
- To review how to graph a line given an equation watch the video at learnzillion.com and enter the quick code LZ2532.
- To review how to write the equation of line that passes through 2 points watch the video at <https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/equation-of-a-line-3> from Khan academy.

Objective 3: Systems of Linear Equations

- Solve a system of linear equations using substitution, elimination, and graphing.
<https://youtu.be/XlOpBGb3PQQ>

Objective 4: Quadratic equations and expressions.

- To review factoring watch the video from learnzillion.com and use the quick code LZ3674.
- To review factoring the difference of two squares watch the video from learnzillion.com and use the quick code LZ3670.
- To review finding the solution to a quadratic equation watch the video from learnzillion.com and use the quick code LZ2825.

Objective 5: Radical Expressions

- To review simplifying radical expressions using a factor tree watch the video from learnzillion.com and enter the quick code LZ2965.
- To review how to multiply radical expressions in simplest form watch the video from the following link.
https://www.youtube.com/watch?v=PMam2c_eXj4
- To review how to add and subtract expressions in simplest form watch the video from the following link.
<https://www.youtube.com/watch?v=QsHJStWF-MM>

Objective 6: Simplify Algebraic Expressions

- Simplify algebraic expressions by combining like terms and using the Distributive Property.
https://youtu.be/3NHSwiv_pSE
- To review simplifying rational expressions, watch this video: <https://youtu.be/7Uos1ED3KHI>

Objective 7: Distance Formula and Midpoint Formula

- To review how to use the Distance formula, watch the video from this link: <https://youtu.be/QPIWrQyeuYw>
- To review how to use the Midpoint formula, watch the video from this link: https://youtu.be/Ez_-RwV9WVo