

## Honors Geometry Summer Math Review

*Please read the following and complete the packet.*

1. Algebra is an important part of every day in Geometry. You need to review it over the summer and be ready to use it at the beginning of the year. Complete this packet over the summer.
2. Your Honors Geometry teacher will be collecting these packets during the first week of school. You will want to make a great impression and have this completed to the best of your ability. Be sure to show ALL of your work on this packet.
3. You will be quizzed over this material within the first week of school. You will be given time to ask some questions prior to that quiz and do some review.
4. You may work with other students but be prepared to support your answers. All answers are attached and I expect that you check your work!
5. You MUST have a calculator for Honors Geometry. Start thinking about that now. It will be used on a regular basis. The TI-84 will be necessary for Algebra 2 with Trigonometry, but for Honors Geometry a two line display scientific calculator is fine. While we may use the iPad's calculator during class, you do need a separate handheld calculator for this course.
6. Review your Algebra skills AND have a great summer! I am confident you will come prepared.
7. Below, you will find a variety of websites you may want to visit over the summer to refresh your memory about the topics discussed in this packet.

Khan Academy: [khanacademy.org/#browse](https://khanacademy.org/#browse) (watch videos of lessons)

IXL: [ixl.com](https://www.ixl.com) (go to algebra and click on topics to practice)

Math Forum at Drexel University: [mathforum.org/dr.math](https://mathforum.org/dr.math)

Math Is Fun?: [mathisfun.com/](https://www.mathisfun.com/)

Cut the Knot: [cut-the-know.org/MathHelp.shtml](https://www.cut-the-knot.org/MathHelp.shtml) (Left hand side, click on Algebra)

Cool Math (Algebra I): [coolmath.com/algebra/Algebra1/index.html](https://www.coolmath.com/algebra/Algebra1/index.html)

Your Future Honors Geometry teacher,  
Mrs. Valerie Guebert

## Write all work on the packet.

Simplify the expressions

1.  $-28+13x+16$

9.  $\frac{12x^2y^0}{4} \div \frac{x^2y^4}{3}$

2.  $10x-(-3x+5)$

3.  $(2y^2-9y+16)-(5y^2+3y-3)$

10.  $(2x)(3x^3-5x)$

4.  $(6x^2+7x+1)+(-2x^2-8)$

11.  $\frac{x^2y}{3y^3x^3} \bullet \frac{18x^4y^2}{xy^6}$

5.  $4y(2-y)+3y^2$

12.  $(x+2)(x-3)$

6.  $2x^2(x+1)+3x(-2+y)$

13.  $(-2x+3)(5x-1)$

7.  $\frac{4x^8}{6x^{-5}}$

14.  $(x+5)^2$

8.  $\frac{3x+2}{2x} + \frac{-x+7}{2x}$

15.  $(x-1)(x^2-4x+7)$

Solve the equations. Leave exact answers.

16.  $x - 18 = -3$

21.  $5(2x - 3) = -15 + 10x$

17.  $\frac{2}{3}x = 18$

22.  $-6x^2 = -216$

18.  $5x - 3 = 12$

23.  $\frac{x}{9} = \frac{3}{x}$

19.  $16x + 24 = 7(x + 6)$

20.  $-4(2x - 1) = 3 - 8x$

24.  $\frac{x + 6}{4} = \frac{-4x}{16}$

$$27. 2x^2 = 9x + 5$$

**Solve using any method (square roots, quadratic formula, factoring)**

$$25. x^2 - 5x + 6 = 0$$

$$28. 2x^2 - 50 = 0$$

$$26. 3x^2 + 1x - 4 = 0$$

$$29. (x+2)^2 = 36$$

$$29. 30. \text{Factor } x^2 - 5x + 6$$

$$31. \text{Factor } x^2 - 16$$

**Factor Completely**

$$32. -4x^3 - 20x^2 - 16x$$

$$33. 3x^5y^2 - 21x^2y^7$$

For 34-36, solve the system of equations using substitution or elimination.  
Write your answer as an ordered pair.

$$34. \quad \begin{cases} y = x - 7 \\ x = 2y + 6 \end{cases}$$

$$35. \quad \begin{cases} 4x - 4y = 12 \\ 3x + 2y = 4 \end{cases}$$

$$36. \quad \begin{cases} y = 2x + 3 \\ y = 4x + 4 \end{cases}$$

**Write a system of equations and solve.** Do NOT just use “guess and check” (create two equations from the word problems and solve using substitution or elimination)

37. The sum of two numbers is eight. One number is three times the other. Find the value for each number.
38. Ryan collects football and baseball cards. His uncle has an old collection of 360 cards that he gave to Alex. His collection has 30 more baseball cards than twice the number of football cards. How many of each type did he give Alex?
39. Carrie is in charge of decorating for the homecoming dance. She purchases 10 bags of balloons and 6 rolls of streamers for \$20.10. She realizes that this is not enough, so she goes back. This time, she spends \$12.80 on 4 bags of balloons and 8 rolls of streamers. What was the price for each item?

40. What topics do you need to review the most to be prepared for Honors Geometry class next year? (list them or write a few sentences to me. If you don't know what the name of the topic is, then write an example of a problem that you need to review)

## Answers

- $-12+13x$
- $13x-5$
- $-3y^2-12y+19$
- $4x^2+7x-7$
- $8y-y^2$
- $2x^3+2x^2-6x+3xy$
- $\frac{2x^{13}}{3}$
- $\frac{2x+9}{2x}$
- $\frac{9}{y^4}$
- $6x^4-10x^2$
- $\frac{6x^2}{y^6}$
- $x^2-x-6$
- $-10x^2+17x-3$
- $x^2+10x+25$
- $x^3-5x^2+11x-7$
- $x=15$
- $x=27$
- $x=3$
- $x=2$
- No Solution
- All (real) numbers
- $x=\pm 6$
- $x=\pm 3\sqrt{3}$
- $x=-3$
- $x=2$  or  $x=3$
- $x=-\frac{4}{3}$  or  $x=1$
- $x=-\frac{1}{2}$  or  $x=5$
- $x=\pm 5$
- $x=4$  or  $x=-8$
- $(x-2)(x-3)$
- $(x-4)(x+4)$
- $-4x(x+4)(x+1)$
- $3x^2y^2(x^3-7y^5)$
- $(8,1)$
- $(2,-1)$
- $\left(\frac{-1}{2}, 2\right)$
- $(6,2)$
- $(250 \text{ baseball}, 110 \text{ football})$
- $\$1.50$  and  $\$0.85$