

Geometry – Summer Math Packet 2026-2027

Welcome upcoming Geometry student! This packet was designed for you to practice the mathematical skills that all students are expected to have upon entering this course. Take the time to complete all the problems and make sure you understand how to do the problems. These prerequisite skills will make your time in Geometry much easier and will greatly increase the likelihood of a successful school year. If you are unsure how to complete some of the problems, you can access online videos for extra help. You may also search the topics at www.khanacademy.org for additional resources. **This Summer Packet will be due the first day of school.** This packet will be **graded**. You will be quizzed on the material from the packet during the first two weeks of school.

To receive full credit on the packet, you must follow the instructions below.

1. Write your name on the top left-hand side of the paper
2. Use only graph paper-do not write on the handout
3. Number your work correctly
4. Show all work- just answers are not sufficient
5. Do not use a calculator
6. Complete all problems. A sincere attempt must be made on all problems. Incomplete homework will receive no credit

Geometry Readiness Summer Packet

1-5 Write your own 5 expressions with distributive property. Use combinations of positive and negative numbers and x cannot have a coefficient of 1

Example 1: $-2(3x-5) = -6x + 10$

Example 2: $4(-2x+3) = -8x + 12$

6-10 Write your own 5 equations with distributive property. Use combinations of positive and negative numbers and x cannot have a coefficient of 1.

Solve your equations. Show all steps

Example:

$$\begin{aligned} -3(5x-1) &= -10 \\ -15x + 3 &= -10 \\ -15x &= -10-3 \\ \underline{-15x} &= \underline{-13} \\ -15 &= -15 \\ x &= \frac{13}{15} \end{aligned}$$

11-15. Write your own equations with distributive property and x terms on both sides. Use combinations of positive and negative numbers. Solve your equation. Show all steps.

Example

$$\begin{aligned} 5(x-3) + 2 &= 2(5-3x) \\ 5x - 15 + 2 &= 10 - 6x \\ 5x - 13 &= 10 - 6x \\ 5x + 6x &= 10 + 13 \\ 11x &= 23 \\ \underline{11x} &= \underline{23} \\ 11 &= 11 \\ x &= \frac{23}{11} \end{aligned}$$

Graph the following lines. Use 1:1 scale

16. $y = \frac{2}{3}x - 4$

17. $y = -3x + 5$

18. $y = -\frac{1}{2}x + 6$

19. $y = -x + 10$

20. $y = \frac{3}{4}x - 8$

21-25 Create your own equation of a line in slope-intercept form. Use combinations of positive and negative numbers; slope must be a fraction. Convert to standard form. Show all steps.

Example: $y = -\frac{4}{3}x + 10$ multiply all terms by denominator 3
 $3y = -4x + 30$ put $-4x$ on other side of equation, change the sign
 $4x + 3y = 30$

26-30 Create 5 equations of a line in standard form. Then convert to slope-intercept form. Then identify the slope and y-intercept.

Example: $5x - 3y = 4$
 $-3y = -5x + 4$ move $5x$ in front of 4, change sign
 $\frac{-3y}{-3} = \frac{-5x}{-3} + \frac{4}{-3}$ divide all by -3
 $y = \frac{5}{3}x - \frac{4}{3}$
slope is $\frac{5}{3}$, y-intercept is $-\frac{4}{3}$

Solve the system by elimination

Example:
$$\begin{cases} 2x - 3y = 13 \\ 3x + 4y = 11 \end{cases}$$

eliminate x

$$\begin{array}{r} -3(2x - 3y = 13) \\ 2(3x + 4y = 11) \end{array}$$

exchange the coefficients of x , change the sign of one of them, then distribute
Add like terms

$$\begin{array}{r} -6x + 9y = -39 \\ 6x + 8y = 22 \\ \hline 0x + 17y = -17 \\ 17y = -17 \\ \hline 17y = -17 \\ 17 \quad 17 \end{array}$$

$$y = -1$$

eliminate y

$$\begin{array}{r} 4(2x - 3y = 13) \\ 3(3x + 4y = 11) \end{array}$$

exchange the coefficients of y , change the sign of one of them, then distribute
Add like terms

$$\begin{array}{r} 8x - 12y = 52 \\ 9x + 12y = 33 \\ \hline 17x + 0y = 85 \\ 17x = 85 \\ \hline 17x = 85 \\ 17 \quad 17 \end{array}$$

$$x = 5$$

Solution is $x = 5, y = -1$

#31-35 Create 5 systems and solve by elimination as shown here.

36 - 38 Factor the following

36. $x^2 - x - 30$

37. $x^2 - 7x + 10$

38. $x^2 + 8x + 15$

39 - 43 Create your own trinomials like
36, 37, 38 and find the factors.

44 - 50 Write your own 7 expressions using
different laws of exponents. and
find the answers.

Examples: $(x^2)(x^6) = x^8$

$$\frac{x^{10}}{x^2} = x^8$$

$$(x^2)^4 = x^8$$

$$x^{-8} = \frac{1}{x^8}$$