

Trigonometry/Introduction to Statistics – Summer Math Packet 2026-2027

Welcome upcoming Trigonometry 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 Trigonometry much easier and will greatly increase the likelihood of a successful school year. If you are unsure how to complete some of the problems, click on the links provided to access online videos for extra help. You may also search the topics listed below 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 have to 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. Each topic should be written in the middle of your page and should be highlighted –the topics in this packet are Simplifying Algebraic Expressions, Integer Exponents, Solving Linear Equations, Writing and Graphing Linear Equations, Factoring and solving , Expanding a binomial
4. Number the problem under each topic correctly.
5. Show all work – just answers are not sufficient.
6. Do not use a calculator.
7. Complete all problems. A sincere attempt has to be made on all problems. Incomplete homework will receive no credit.

A. [Simplifying Algebraic Expressions](#)

Simplify the following expressions by adding, subtracting, multiplying, and dividing where necessary.

1. $4x(x - 7) - 8x^2$
2. $(x^2 + 4x + 5) - (3x - 3)$
3. $(3x + 1)(2x + 5)$
4. $(2x - 3)(x^2 + x + 1)$

B . Integer Exponents

Simplify each expression using the law of exponents. Express the answer so all exponents are positive.

1. $x^0 y^{-2}$
2. $(8x^3)^2$
3. $-(4x)^{-1}$
4. $\frac{3x^{-2}y^3}{xy^4}$
5. $(\frac{3x}{4y^2})^{-2}$
6. $-3^2(xy)^{-3}$

C. Solving Linear Equations

Solve the following equations. Check your solution.

1. $5x - 10 = 8 - 32x$
2. $3(x + 2) = 5x + 4$
3. $-6(x - 3) + 5 = -2x + 10$
4. $3(x + 2) - 5 = 3x + 1$
5. $4(x + 1) - 2x = 2(x + 2)$
6. $-7(x - 3) + 4x = 3(7 - x)$
7. $2(x + 5) - 7 = 3(x - 2)$
8. $x - 3(2x + 3) = 8 - 5x$
9. $9x - 10 = 5x + 2(2x - 5)$
10. $\frac{5x}{4} + \frac{1}{2} = x - \frac{1}{2}$
11. $\frac{x}{5} - \frac{x}{2} = 3 + \frac{3x}{10}$
12. $\frac{3x}{2} + \frac{1}{4}(x - 2) = 10$

Writing and Graphing Linear Equations

[Graphing Linear Equations](#)

[Writing Linear Equations](#)

D. Sketch the lines through the point with the indicated slopes,

1. $(2, 3)$ *slope* = 0

2. $(2, 4)$ *slope* = 2

3. $(-2, 3)$ *slope* = -3

4. $(-4, 5)$ *slope* = *undefined*

5. $(-2, 4)$ *slope* = $\frac{1}{3}$

E. Find the slope and the y-intercept (if possible) of the equation of the line. Sketch the line.

1. $y = 5x + 3$

2. $5x - 2 = 0$

3. $7x + 6y = 30$

4. $y = -\frac{3}{2}x + 6$

5. $3y + 5 = 0$

6. $2x + 3y = 9$

F. Find the slope and the equation of the line passing through the pair of points

1. $(-3, -2), (1, 6)$

2. $(2, 4), (4, -4)$

3. $(\frac{11}{2}, -\frac{4}{3}), (\frac{3}{2}, -\frac{1}{3})$

4. $(0, -10), (-4, 0)$

Factoring and solving

[Greatest Common Factor \(GCF\)](#)

[Difference of Squares](#)

[Factoring Quadratic into two Binomials](#)

[Factoring by Grouping](#)

[Factor by the sum/difference of cubes](#)

G. Solve by factoring

1. $6x^2 + 3x = 0$

2. $9x^2 - 1 = 0$

3. $x^2 - 2x - 8 = 0$

4. $x^2 + 10x + 25 = 0$

5. $3 + 5x - 2x^2 = 0$

6. $x^2 + 4x = 12$

7. $\frac{3}{4}x^2 + 8x + 20 = 0$

8. $4x^2 + 12x + 9 = 0$

9. $(x + a)^2 - b^2 = 0$

10. $4x^4 - 18x^2 = 0$

11. $x^4 - 81 = 0$

12. $20x^3 - 125x = 0$

13. $x^6 - 64 = 0$

14. $x^3 + 216 = 0$

15. $27x^3 - 512 = 0$

16. $5x^3 + 30x^2 + 45x = 0$

17. $9x^4 - 24x^3 + 16x^2 = 0$

18. $x^3 + 2x^2 + 3x + 6 = 0$

19. $x^4 - x^3 + x + 1 = 0$

20. $x^4 + 2x^3 - 8x - 16 = 0$

21. $x^4 - 4x^2 + 3 = 0$

22. $36x^4 + 29x^2 - 7 = 0$

H. Expand the binomial

$$1.(x-4)^2$$

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

$$3.(x+5)^2$$

$$4.(3x^3-1)^2$$

$$5.(4x+5)^2$$