

# PreAP Geometry



# Summer Assignment

## PreAP Geometry Summer Assignment

PreAP Geometry is a rigorous critical thinking course. Our expectation is that each student is fully prepared; therefore, the following Algebra 1 concepts must be mastered prior to the beginning of PreAP Geometry.

- *Solving linear equations*
- *Graphing linear equations*
- *Finding slope from ordered pairs and/or linear equations.*
- *Writing equations of lines in slope-intercept, point-slope and standard forms*
- *Solving systems of equations*
- *Multiplying binomials*
- *Factoring*
- *Solving quadratic equations by factoring and with Quadratic Formula*
- *Simplifying, multiplying, and adding radicals*
- *Solving right triangles using the Pythagorean Theorem*
- *Multiplying, dividing, adding and subtracting expressions with exponents, take a power to a power, simplifying expressions with negative exponents*
- *Adding, subtracting, multiplying, dividing, and simplifying fractions*
- *Solving literal equations*

For your benefit, the assignment includes the answers. (Hint: You may need to look up some vocabulary through Google or other resources.) CISD staff will not be available for tutoring during the summer.

***A test over these concepts will take place during the first week of school. The test will be non-calculator.***

Leave answers in simplified radical form or improper fractions (no decimals).

Bring this completed review packet to the first class meeting (all work must be shown). It will count as a homework grade.

We look forward to meeting you in August!

Contact: Mrs. Brooks, [brooksr@cisdmail.com](mailto:brooksr@cisdmail.com)

**PreAP Geometry**  
**Summer Assignment - Algebra Review**

Name \_\_\_\_\_

**This assignment should be completed without the use of a calculator.  
Show all work for credit.**

**Solve. Use improper fractions where appropriate. (No decimals or mixed numbers).**

\_\_\_\_\_ 1.  $4(3n + 5) - 2(2 - 4n) = 6 - 2n$

\_\_\_\_\_ 2.  $3x - 12 - 5x = 5 - 6x - 9$

\_\_\_\_\_ 3.  $\frac{2}{3}x - \frac{1}{6} = 7$

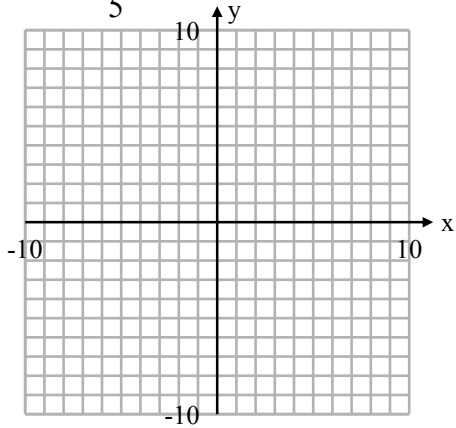
\_\_\_\_\_ 4.  $\frac{2}{15} + \frac{3}{5}x = \frac{7}{15} + \frac{2}{3}x$

\_\_\_\_\_ 5.  $2(4x) - (x - 1) = 2(1 - x)$

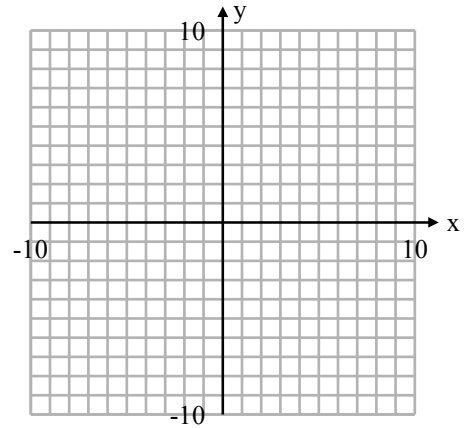
\_\_\_\_\_ 6.  $\frac{2}{3}a - \frac{5}{6} = \frac{1}{2}a - 4$

**Graph each line:**

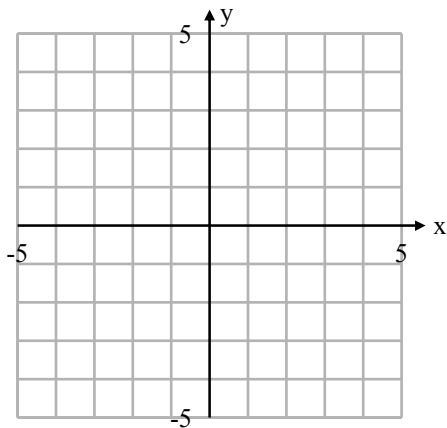
7.  $y = -\frac{2}{5}x - 3$



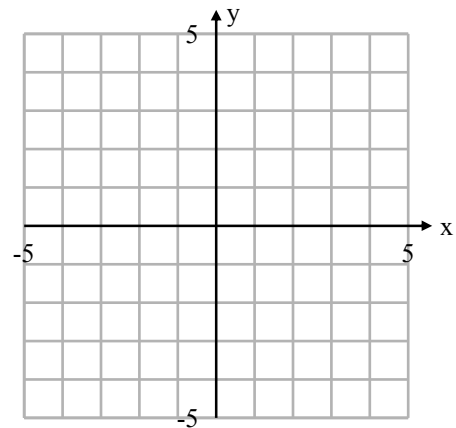
8.  $3x - 2y = 12$



9.  $y = 3$



10.  $x = -1$



**Find the slope of each line:**

\_\_\_\_\_ 11.  $y = -2x - 4$

\_\_\_\_\_ 12. a horizontal line

\_\_\_\_\_ 13. a vertical line

\_\_\_\_\_ 14.  $y = -x$

\_\_\_\_\_ 15. The line passing through A (-2, 3) and B (2, -4)

**Write the equation of the line described.**

\_\_\_\_\_ 16. Slope 2, y intercept  $-4$   
(Show answer in slope-intercept form.)

\_\_\_\_\_ 17. Passing through the points  $(-1,3)$  and  $(5, 7)$   
(Show answer in standard form.)

\_\_\_\_\_ 18. With undefined slope, passing through  $(2, 1)$

\_\_\_\_\_ 19. Slope  $-\frac{3}{5}$ , passing through the point  $(5, -2)$   
(Show answer in point-slope form.)

**Solve each system of equations using addition (elimination) or substitution.**

\_\_\_\_\_ 20.  $2x - 3y = 8$   
 $x + y = 4$

\_\_\_\_\_ 21.  $3y - 2x = 4$   
 $\frac{1}{6}(3y - 4x) = 1$

\_\_\_\_\_ 22.  $5x - 2y = 3$   
 $2x + 7y = 9$

\_\_\_\_\_ 23.  $2x - 3y = 1$   
 $3x + 5y = 11$

**Multiply.**

\_\_\_\_\_ 24.  $(x - 3)(x + 7)$

\_\_\_\_\_ 25.  $(2x - 1)(5x + 3)$

\_\_\_\_\_ 26.  $(x + 8)^2$

\_\_\_\_\_ 27.  $(2x - 3)^2$

\_\_\_\_\_ 28.  $(x - 2)(x + 2)$

\_\_\_\_\_ 29.  $(7m - 1)(2m - 3)$

**Factor.**

\_\_\_\_\_ 30.  $a^2 + 9a + 18$

\_\_\_\_\_ 31.  $2a^2 + a - 15$

\_\_\_\_\_ 32.  $3y^2 - 14y - 24$

\_\_\_\_\_ 33.  $b^2 - 8b + 16$

\_\_\_\_\_ 34.  $x^2 - 81$

\_\_\_\_\_ 35.  $16p^2 - 25$

**Solve by factoring.**

\_\_\_\_\_ 36.  $3x^2 + 13x - 10 = 0$

\_\_\_\_\_ 37.  $2a^2 + 5a = -4(a + 1)$

\_\_\_\_\_ 38.  $a^2 - 4a = 21$

**Solve using the Quadratic Formula.  
Give exact answers in simplified radical form.**

\_\_\_\_\_ 39.  $a^2 - 3a - 6 = 0$

\_\_\_\_\_ 40.  $2a^2 + 5a + 1 = 0$

**Simplify.**

\_\_\_\_\_ 41.  $\sqrt{45}$

\_\_\_\_\_ 42.  $3\sqrt{72}$

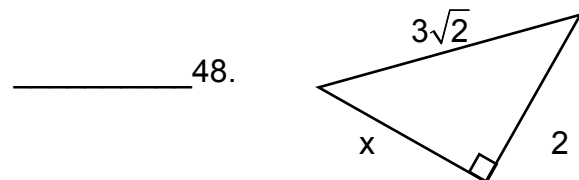
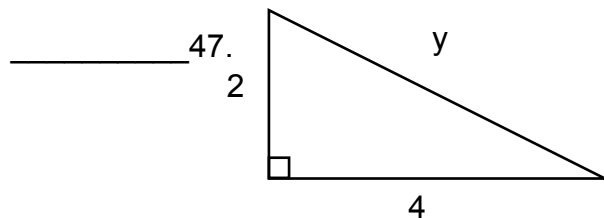
\_\_\_\_\_ 43.  $5\sqrt{32}$

\_\_\_\_\_ 44.  $7\sqrt{3} - 3\sqrt{3}$

\_\_\_\_\_ 45.  $3\sqrt{6} + \sqrt{24}$  (Hint: simplify before adding.)

\_\_\_\_\_ 46.  $7\sqrt{8} \cdot 5\sqrt{2}$

**Use the Pythagorean Theorem to find the value of the variable. Give exact answers in simplified radical form.**



\_\_\_\_\_ 49. In little league baseball, the distance of the paths between each pair of consecutive bases is 60 feet and the paths form right angles. How far does the ball need to travel if it is thrown from home plate directly to second base?

**Simplify.**

\_\_\_\_\_ 50.  $a^5 \cdot a \cdot a^{-2}$

\_\_\_\_\_ 51.  $\frac{16x^2y}{2xy}$

\_\_\_\_\_ 52.  $(2n)^4 \cdot (3n)^2$

\_\_\_\_\_ 53.  $(3x^2y)^2 \cdot (-4xy^3)$

54. Find the area and perimeter of the rectangle.

A = \_\_\_\_\_

P = \_\_\_\_\_

$(2a)^2$



$(3b^2)^3$

**Solve each literal equation for the stated variable.**

\_\_\_\_\_ 55. Solve  $P = 2l + 2w$  for  $w$

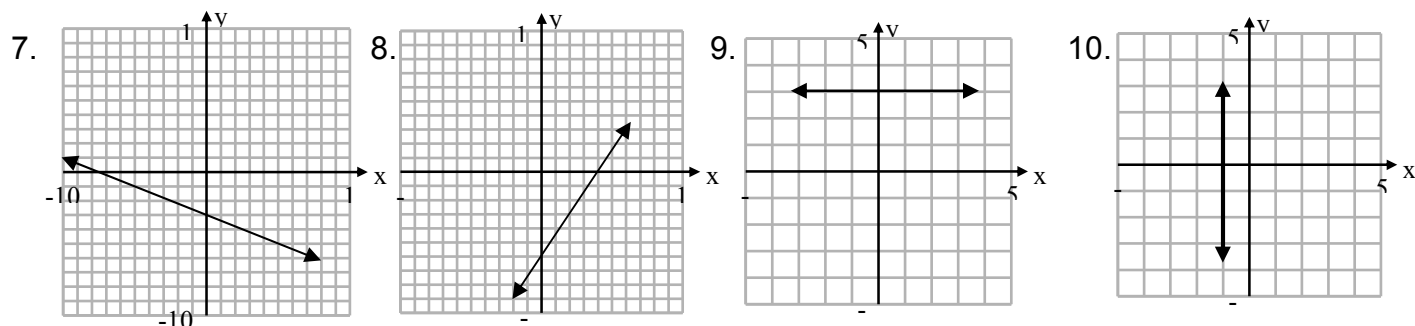
\_\_\_\_\_ 56. Solve  $A = \frac{1}{2}bh$  for  $h$

\_\_\_\_\_ 57. Solve  $V = \pi r^2h$  for  $h$

\_\_\_\_\_ 58. Solve  $F = \frac{9}{5}C + 32$  for  $C$

**Key:**

1.  $-\frac{5}{11}$     2. 2    3.  $\frac{43}{4}$     4. -5    5.  $\frac{1}{9}$     6. -19



11. -2    12. 0    13. Undefined    14. -1    15.  $-\frac{7}{4}$     16.  $y = 2x - 4$   
 17.  $2x - 3y = -11$     18.  $x = 2$     19.  $y + 2 = -\frac{3}{5}(x - 5)$     20. (4, 0)

21.  $(-1, \frac{2}{3})$     22. (1, 1)    23. (2, 1)    24.  $x^2 + 4x - 21$

25.  $10x^2 + x - 3$     26.  $x^2 + 16x + 64$     27.  $4x^2 - 12x + 9$

28.  $x^2 - 4$     29.  $14m^2 - 23m + 3$     30.  $(a + 6)(a + 3)$     31.  $(2a - 5)(a + 3)$

32.  $(3y + 4)(y - 6)$     33.  $(b - 4)^2$     34.  $(x - 9)(x + 9)$     35.  $(4p - 5)(4p + 5)$

36.  $x = \frac{2}{3}$  or  $x = -5$     37.  $a = -4$  or  $a = -\frac{1}{2}$     38.  $a = 7$  or  $a = -3$

39.  $\frac{3 \pm \sqrt{33}}{2}$     40.  $\frac{-5 \pm \sqrt{17}}{4}$     41.  $3\sqrt{5}$     42.  $18\sqrt{2}$

43.  $20\sqrt{2}$     44.  $4\sqrt{3}$     45.  $5\sqrt{6}$     46. 140

47.  $2\sqrt{5}$     48.  $\sqrt{14}$     49.  $60\sqrt{2}$  ft.

50.  $a^4$     51.  $8x$     52.  $144n^6$     53.  $-36x^5y^5$

54.  $A = 108a^2b^6$      $P = 8a^2 + 54b^6$     55.  $w = \frac{P - 2I}{2}$     56.  $h = \frac{2A}{b}$

57.  $h = \frac{V}{\pi r^2}$     58.  $C = \frac{5}{9}(F - 32)$