

Entering Geometry Summer Packet

Name _____

This assignment will be graded on completion as well as accuracy and will count as your first TEST grade. All work must be shown to receive full credit. Complete work is worth 50% of the grade and the correct answer is worth 50% of the grade. Write your answers in the space provided. These problems are reflective of the knowledge that is prerequisite to the Geometry course.

Evaluate the expression for the given value(s) of the variable(s).

_____ 1. $(x - 4) + 6$ when $x = 10$

_____ 2. $(y - 2)^2 + (y + 5)^2$ when $y = -3$

_____ 3. $(x - y)^2 + 2(x + y)$ when $x = 9$ and $y = -2$

Write a variable expression for the following:

_____ 4. 3 less than twice a number

_____ 5. 7 divided by the sum of 5 and a number

Simplify. Reduce fractions to simplest fraction form. Use Order of Operations (PEMDAS).

_____ 6. $(-5)(9)$

_____ 7. $-\frac{2}{9} \div -\frac{2}{3}$

_____ 8. $\frac{9}{10} - \frac{1}{2} + \left(-\frac{1}{5}\right)$

_____ 9. $\left(-\frac{2}{3}\right)\left(\frac{1}{5}\right) - \left(\frac{7}{15} \div \frac{28}{3}\right)$

_____ 10. $8 + 2[10 - 2(8 \div 4)]$

_____ 11. $-(-8 - |-10|)$

Solve the equation for x.

_____ 12. $5x - 12 = 48$

_____ 13. $0.4x - 1.6 = 2.4x$

_____ 14. $-\frac{7}{8}x = \frac{3}{4}$

_____ 15. $x = 2(x - 1) + 6$

_____ 16. $8x - 4 = 3x - 2$

_____ 17. $-6x - 1 = 23$

_____ 18. $3 - \frac{x}{2} = 10$

Factor the expressions completely. (do not solve – only factor – these are not equations)

_____ 19. $3x^2 - 48$

_____ 20. $x^2 - 5x + 6$

_____ 21. $8x^3 + 12x^2$

Solve for x by factoring. (there may be more than one answer for x)

_____ 22. $x^2 + 9x + 8 = 0$

_____ 23. $x^2 = 49$

_____ 24. $x^2 = 10x - 25$

Solve the following systems of equations. Solve for x and y. Use substitution or elimination method.

_____ 25.
$$\begin{aligned}x - 3y &= -1 \\2x - 3y &= 4\end{aligned}$$

_____ 26.
$$\begin{aligned}3x - 2y &= -2 \\x + y &= 6\end{aligned}$$

Solve each proportion. Solve for x.

_____ 27.
$$\frac{3}{5} = \frac{x}{15}$$

_____ 28.
$$\frac{x}{5} = \frac{3}{4}$$

_____ 29.
$$\frac{9}{4x} = \frac{3}{8}$$

_____ 30.
$$\frac{x-5}{4} = \frac{3}{2}$$

Simplify the expressions. (do not solve – only simplify - these are not equations)

_____ 31. $a^2 \cdot a^3$

_____ 32. $(-2x)(5x^2)$

_____ 33. $\frac{5m^7}{m^3}$

_____ 34. $23a^2 - 17a - 3a^2 - a + 5$

_____ 35. $(2b - 1)(2b + 1)$

_____ 36. $-3a^3(2a^2 - 5a - 4)$

_____ 37. $(3a - 2)^2$

Solve the following:

_____ 38. The perimeter of a rectangle is 108. If the length is 33, find the width.

_____ 39. A rectangle is 4.5 m wide. Find the length if the area is 54 m^2 .

_____ 40. Find the area of a triangle with a height of 6 cm and base of 5 cm.

_____ 41. Find the area of a circle with a radius of 10 m. (use $\pi = 3.14$)

_____ 42. Find the circumference of a circle with a diameter of 8 in.
(use $\pi = 3.14$)

_____ 43. Find the area of a square which has a perimeter of 24 m.

Find the missing length of the right triangle if a and b are the lengths of the legs and c is the length of the hypotenuse. Pythagorean Formula: $a^2 + b^2 = c^2$

_____ 44. $a = 5, b = 12$

_____ 45. $b = 6, c = 10$

_____ 46. $a = 1, c = \sqrt{5}$

Find the distance between the two points. Distance formula: $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

_____ 47. $(-2, 3), (6, 9)$

_____ 48. $(-3, 2), (6, 5)$

_____ 49. $(1, 0), (4, -4)$

Simplify the following radicals (do not change to decimals).

_____ 50. $\sqrt{8}$

_____ 51. $\sqrt{25}$

_____ 52. $\sqrt{3} + \sqrt{3}$

_____ 53. $10\sqrt{75}$

_____ 54. $\sqrt{5} \cdot \sqrt{15}$

_____ 55. $3\sqrt{2} - \sqrt{8}$

_____ 56. $\frac{2}{\sqrt{3}}$

Find the slope and y-intercept of each line. First solve for y. Then use slope-intercept form. Slope-intercept Form: $y=mx + b$ (m = slope; b = y-intercept)

_____ 57. $y = \frac{1}{2}x - 6$

_____ 58. $2y = -6x + 4$

_____ 59. $5x - 10y = 250$

_____ 60. $3y - 5x - 2 = 0$

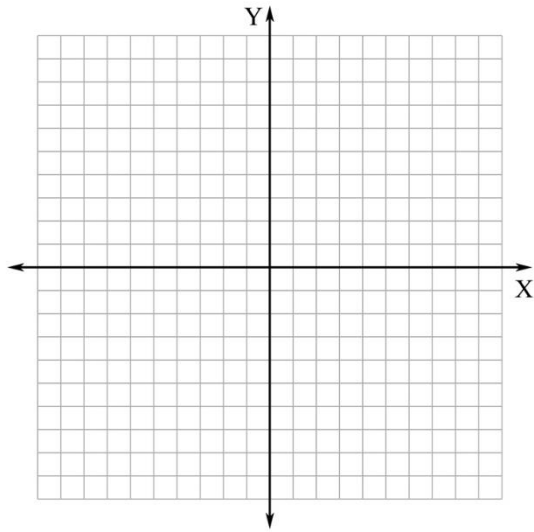
Find the slope of the line passing through the points. Slope Formula: $\frac{y_2 - y_1}{x_2 - x_1}$

_____ 61. (2,2), (-1,4)

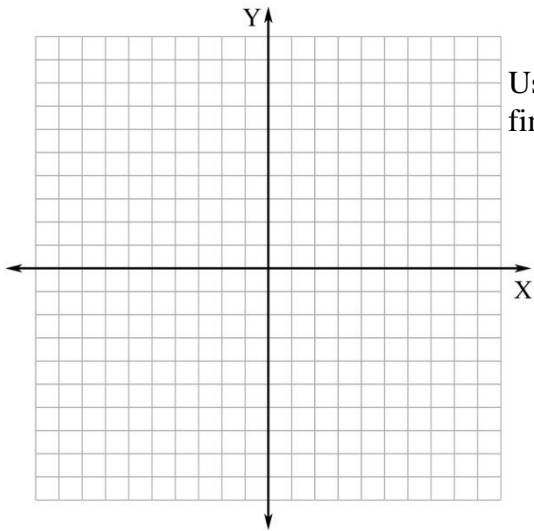
_____ 62. (4,5), (2,2)

_____ 63. (6,1), (-4,1)

64. Plot and label the following points: A (4,2) B (3, - 2) C (- 5,0) D (- 2, - 1)



65. Plot and label the following points: A (- 3 ,8) B (6,5) C (0,2) D (2, - 4)



Using distance formula, $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
find the length of the following line segments:

AC=_____

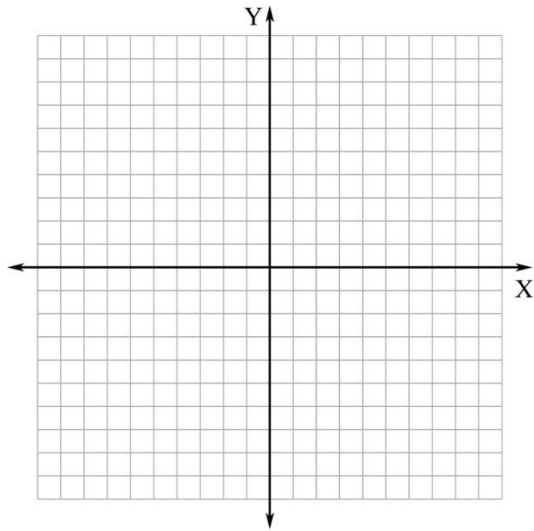
BC=_____

CD=_____

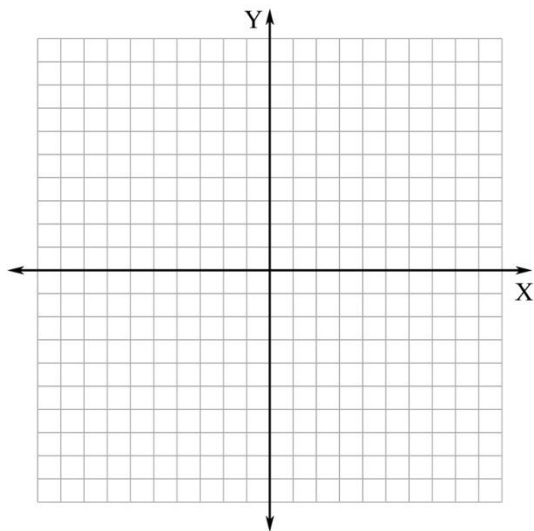
Tell whether any of the segments have the same length. _____

Graph each of the following lines (plot at least 2 points and connect with a straight line): Solve for y before graphing. Use slope-intercept form. Watch for horizontal or vertical lines.

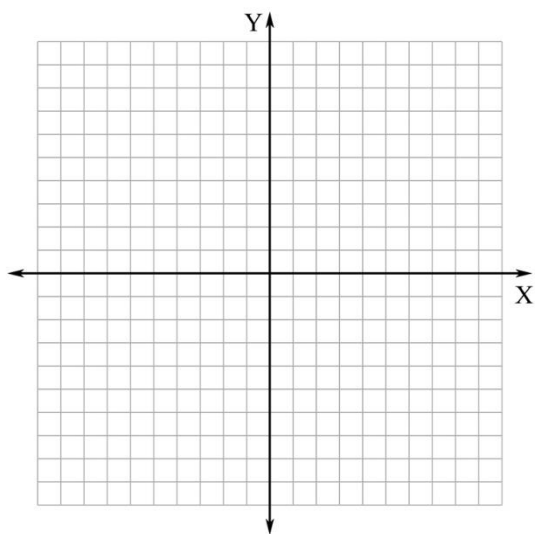
66. $2x + 4y = 4$



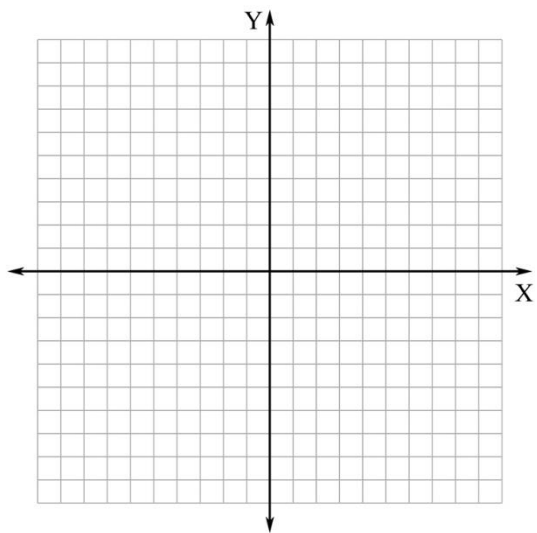
67. $y = 2x - 5$



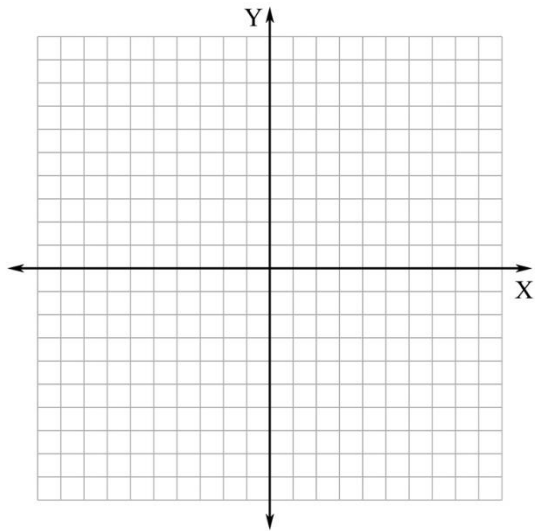
68. $y = -\frac{1}{2}x + 3$



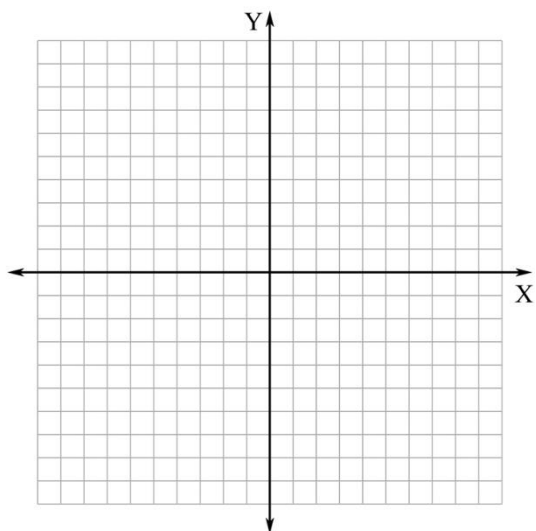
69. $y = 2$



70. $x = -3$



71. $x + 3y = 0$



72. $-3x + 6y = -x - 12$

