

Name _____ - SUMMER ASSIGNMENT, Algebra to Geometry

1. Factor the monomial completely: $63a^3b^3$

2. Find the GCF (Greatest Common Factor): $36s^5t^2, 120s^2t$

3. Factor by finding GCF: $12g + 20h$

4. Factor by finding GCF: $16j^2k - 8j^6k^5 + 60j^3$

5. Solve the equation (** two solutions) (hint: set each factor to zero): $(r - 3)(r + 6) = 0$

6. Solve the equation (**two solutions) (hint: set equal to zero and factor): $4k^2 = 5k$

7. Factor the trinomial: $x^2 + 15x + 14$

8. Factor the trinomial: $g^2 - 9g - 22$

9. Factor the trinomial, if possible. If the trinomial cannot be factored using integers, write prime.
 $3t^2 + 10t + 8$

10. Solve the equation (** two solutions) (hint: factor and set each factor to zero):
 $12x^2 - 14x + 4 = 0$

11. Solve the equation by factoring (**two solutions) (hint: factor and set each factor to zero):
 $a^2 - 10a + 25 = 6$

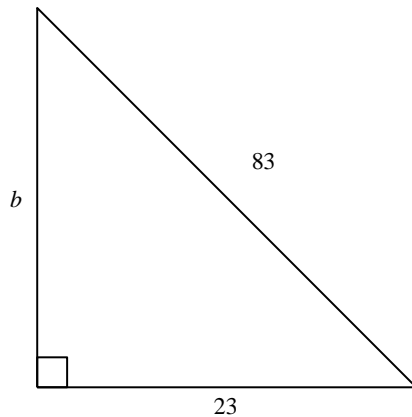
12. Simplify the expression (multiplying radicals): $\sqrt{13} \cdot \sqrt{17}$

13. Simplify the expression (simplifying radicals): $\sqrt{8z^2y^3}$

14. Solve the equation (solving radical equation): $\sqrt{7s - 20} = 6$

15. If c is the measure of the hypotenuse of a right triangle, find each missing measure. If necessary, round to the nearest hundredth. (Pythagorean Theorem: $a^2 + b^2 = c^2$)
 $a = 60, b = ?, c = 100$

16. Find the length of the missing side. If necessary, round to the nearest hundredth. (Pythagorean Theorem: $a^2 + b^2 = c^2$)

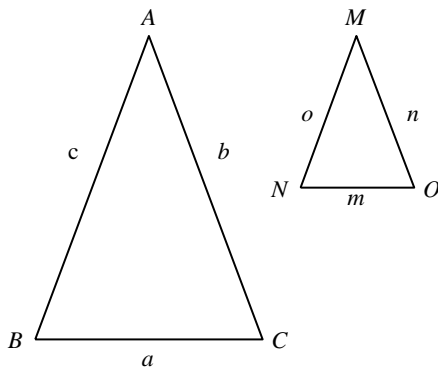


17. Determine whether the following side measures form a right triangle (hint: do they satisfy the Pythagorean Theorem? (Pythagorean Theorem: $a^2 + b^2 = c^2$)). Justify your answer.
 $20, 21, 29$

18. Find the distance between the pair of points whose coordinates are given. Express as a decimal approximation rounded to the nearest hundredth if necessary. (Distance Formula: $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$)
 $(-8, -10), (-9, -13)$

19. Find the distance between the pair of points whose coordinates are given. Express as a decimal approximation rounded to the nearest hundredth if necessary. (Distance Formula: $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$)
 $(11, 7), (16, 6)$

Use the figure below for questions 20-21. These figures are similar (\sim), which means that they are proportional. Corresponding sides are proportional, so for the statement: $\triangle ABC \sim \triangle MNO$, "side AB is to side MN as side AC is to side MO as side BC is to side NO." Set up a proportion, cross multiply and solve.



20. For each set of measures given, find the measures of the missing side if $\triangle ABC \sim \triangle MNO$.
 $a = 8, b = 10, m = 4, n = ?$

21. For each set of measures given, find the measures of the missing side if $\triangle ABC \sim \triangle MNO$.
 $c = 12, b = 15, o = 4, n = ?$

22. Find the value of $f(-9)$ and $g(4)$ if $f(x) = -4x + 8$ and $g(x) = 6x + 25$
(HINT: for $f(-9)$, plug in -9 for x into $f(x)$, and for $g(4)$, plug in 4 for x into $g(x)$)

23. Find the value of $f(-9)$ and $g(-2)$ if $f(x) = -5x - 2$ and $g(x) = 3x^2 - 21x$.
(HINT: for $f(-9)$, plug in -9 for x into $f(x)$, and for $g(-2)$, plug in -2 for x into $g(x)$)

23. Write the equation $8y = -3x + 24$ in standard form. Identify A , B , and C .
(Standard form is $Ax + By = C$, where A , B , and C are integers, and A is positive)

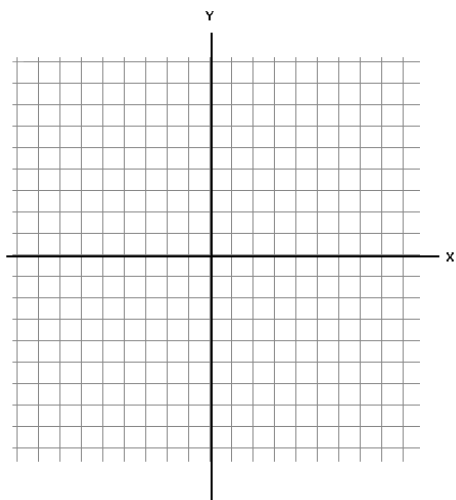
24. Find the x -intercept and the y -intercept of the equation $11x + 12y = 8$.
(For x -intercept, let $y = 0$ and solve for x , for y -intercept, let $x = 0$ and solve for y)

26. Find the slope of the line that passes through the pair of points $(17, 11)$ and $(21, 19)$. ($m = \frac{y_2 - y_1}{x_2 - x_1}$)

27. Find the slope of the line that passes through the pair of points $(5, 12)$ and $(-5.5, -7.5)$. ($m = \frac{y_2 - y_1}{x_2 - x_1}$)

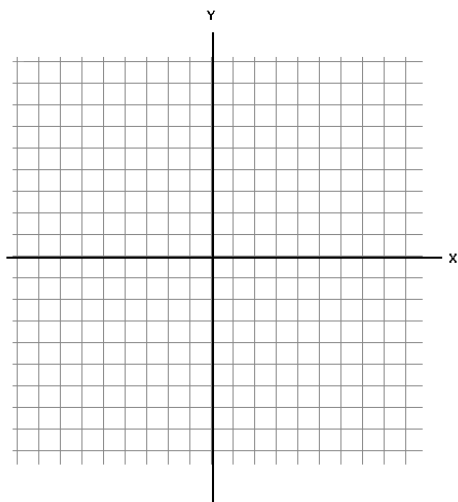
28. Find the slope of the line that passes through the pair of points $(10, 2)$ and $(9, 13)$. ($m = \frac{y_2 - y_1}{x_2 - x_1}$)

29. Graph the line that passes through $(1, 4)$, parallel to a line whose slope is -4 . (parallel lines have the same slope)



30. Write an equation in slope-intercept form for the line that satisfies the following condition.

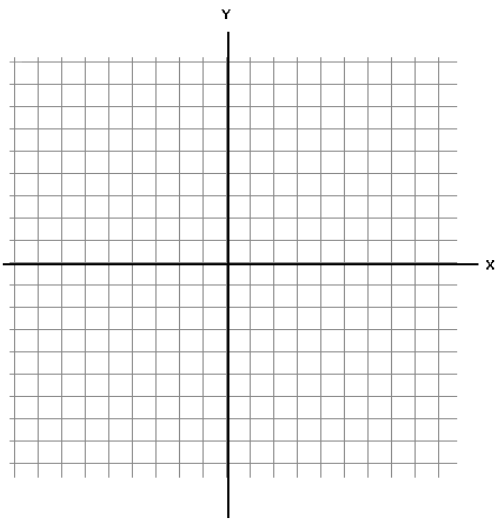
Passes through $(8, 10)$, parallel to the graph of $y = \frac{8}{3}x + 7$ (use the grid if it helps)



31. Solve the following system of equations by graphing. (The point of intersection is the solution)

$$y = 11x - 6$$

$$y = -6x + 11$$



32. Solve by substitution.

$$8x + 7y = 18$$

$$3x - 5y = 22$$

33. Solve by substitution.

$$3r + 3s = 9$$

$$3r - 6s = 18$$

34. Solve by elimination.

$$\begin{aligned}3p + 9q &= 6 \\5p - 5q &= 30\end{aligned}$$

35. Solve by elimination.

$$\begin{aligned}6a + 6b &= 12 \\6a - 5b &= 12\end{aligned}$$

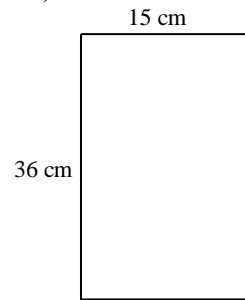
36. Solve: (try solving for a first!)

$$\begin{aligned}-3a &= 36 \\10a + 3c &= 9 \\2b + 5c &= 23\end{aligned}$$

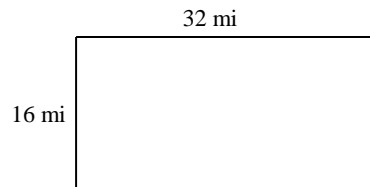
37. Solve: (try solving for a first!)

$$\begin{aligned}11a + 2c &= 10 \\-2a &= 32 \\8b + 10c &= 18\end{aligned}$$

38. Find the perimeter (assume parallelogram)

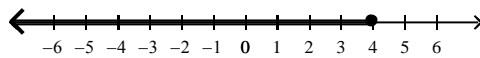


39. Find the area (assume a rectangle).

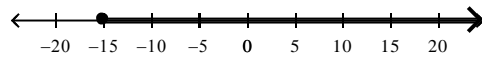


40. Solve: $10g + 5 = 11g$

41. Write an inequality for the graph:



42. Write an inequality for the graph.



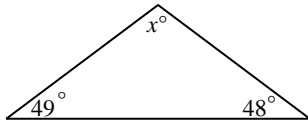
43. Solve the inequality: $p + 7 < -3$

44. Solve the equation: $2(n + 4) = 8 - 6(n - 4)$

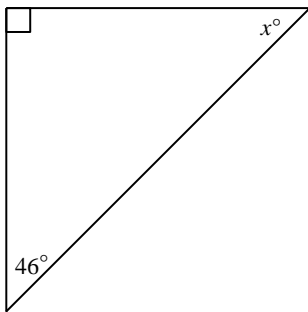
45. Solve the proportion: $\frac{8}{3} = \frac{d}{21}$

46. Write and solve a proportion for x .
12 balls in 2 boxes
78 balls in x boxes

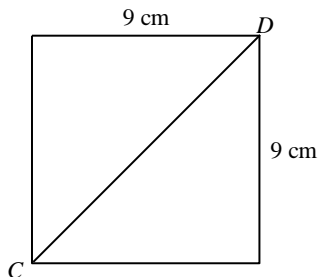
47. Find the value of x and classify the triangle as acute, right, obtuse. (Angles in a triangle sum to 180°)



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49. What is the length of \overline{CD} to the nearest tenth of a centimeter of the square below? (Pythagorean Theorem: $a^2 + b^2 = c^2$)



50. Find the distance between the pair of points. $E(-9, 3), F(-1, 7)$

(Distance Formula: $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$)