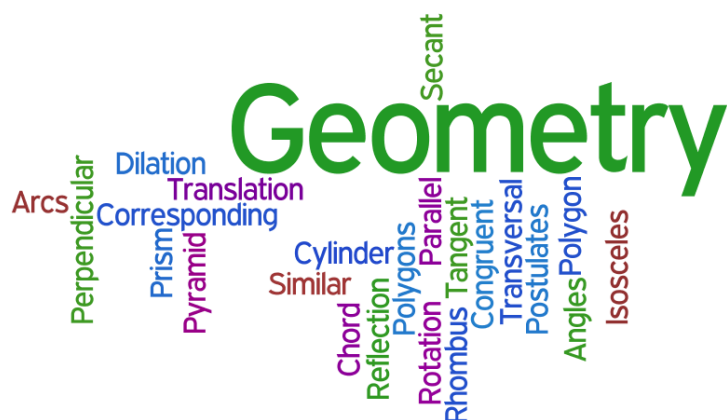


Geometry Summer Packet



June 2020

This packet will be due the first week of school and will be your first grade. Be sure to show all of your work and box your final answer. Your work should be neat and legible. If you need more space than is provided, you can attach a separate sheet of paper with problems numbered and in order.

Have a happy and safe summer, and we look forward to seeing you in Geometry in the fall.

Archbishop Curley Math Department

This year in Algebra 1, you learned how to solve multistep equations as in the examples shown below:

How to solve Multistep Equations

1. Simplify each side
2. Eliminate the variable from the right side
3. Eliminate the constant term from the left side
4. Divide each side by the coefficient

Example:

$$3(x + 1) = 5 + x$$

$$3x + 3 = 5 + x$$

$$2x + 3 = 5$$

$$2x = 2$$

$$x = 1$$

Example:

$$2(x + 2) - 5 = 3(x + 1)$$

$$2x - 1 = 3x + 3$$

$$-x - 1 = 3$$

$$-x = 4$$

$$x = -4$$

8-2 Solving Two-Step Equations

EXAMPLE Solve Two-Step Equations

2 Solve $-4 = \frac{1}{3}z + 2$.

$$-4 = \frac{1}{3}z + 2$$

Write the equation.

$$-4 - 2 = \frac{1}{3}z + 2 - 2$$

Subtract 2 from each side.

$$-6 = \frac{1}{3}z$$

Simplify.

$$3(-6) = 3 \cdot \frac{1}{3}z$$

Multiply each side by 3.

$$-18 = z$$

Simplify.

Answer: The solution is -18 .

You will need to solve equations as you did in Algebra 1 throughout Geometry. Solve the following equations:

1. $3x + 8 = 7x - 16$

2. $2x - 25 = 7x$

3. $-4(3 - x) = 2(x + 6)$

4. $3x - 5(x + 6) = 0$

5. $6x + 7 - 2x + 4 = 2x + 6$

6. $2x + 4 = 6$

7. $7x + 16 = 5x$

8. $x + 2x + 3x + 4x = 10$

9. $x + 2x + 3x + 4x + 5x = 50 + 75 + 100$

10. $3x + 4 = 12 + x$

Now that you've had the chance to look over some examples of the distributive property, apply it to the following exercises:

11. $-3(2y - 6)$

12. $-2(2x + 5y)$

13. $-(-x + 2)$

14. $2(-4x + 1)$

15. $2(x + 5)$

16. $-3x(-3x - 4)$

17. $2(x + 75)$

18. $-3(x - 9)$

19. $-2(x - 5)$

20. $3(4x + 3)$

You also learned how to combine like terms in Algebra 1 (or before). Refer to the examples below:

Combine Like Terms

Like terms have the same variable with the same exponent.

Steps to combine like terms

1. Use the distributive rule to remove any parenthesis.
2. Move the like terms next to each other.
3. Add or subtract the like terms.

Example:

$$\begin{aligned} & 4x + 5xy - 3x^2 - 6xy + 6 \\ &= 4x + 5xy - 6xy - 3x^2 + 6 \\ &= 4x + xy - 3x^2 + 6 \end{aligned}$$

Example:

$$\begin{aligned} & 3x + 2x(x + 2) - 6x^2 \\ &= 3x + 2x^2 + 4x - 6x^2 \\ &= 3x + 4x + 2x^2 - 6x^2 \\ &= 7x - 4x^2 \end{aligned}$$

Combine like terms.

A. $2x + 5x - 4y + 3$

$$\textcircled{2x} + \textcircled{5x} - \boxed{4y} + \boxed{3}$$

$$7x - 4y + 3$$

Identify like terms.

Combine coefficients: $2 + 5 = 7$

B. $9d + 7c - 4d - 2c$

$$\textcircled{9d} + \boxed{7c} - \textcircled{4d} - \boxed{2c}$$

$$5d + 5c$$

Identify like terms.

Combine coefficients: $9 - 4 = 5$
and $7 - 2 = 5$

C. $8g + c - 6$

$$\boxed{8g} + \textcircled{c} - \boxed{6}$$

No like terms.

Combining like terms & Solve

$$4x + 6 + 3x - 18 = 23$$

$$4x + 3x + 6 - 18 = 23$$

$$7x - 12 = 23$$

$$\underline{+12} \quad \underline{+12}$$

$$\frac{7x}{7} = \frac{35}{7}$$

$$\boxed{x = 5}$$

Now try to combine like terms in the examples below:

21. $-9x + 6 + 17x$

22. $-15n + 2n + 13n$

23. $-9 - 8x + 4 + 10x$

24. $3x - 7x^2 - 4x + 3x^2$

Distribute, then combine like terms below:

25. $-3x + 3(x - 5)$

26. $2 - 5(3x + 1)$

27. $-2(x - 1) + 7$




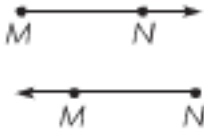



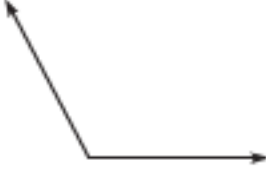

28. $-2(x - 5) + 3(4x + 3)$

29. $2x - (3x - 1)$

30. $6(x + 3y) - 2(3x - 2y)$

Let's take a look at some basic Geometry vocabulary. You'll be using these words, symbols, and naming conventions throughout the year, so do your best to practice now!

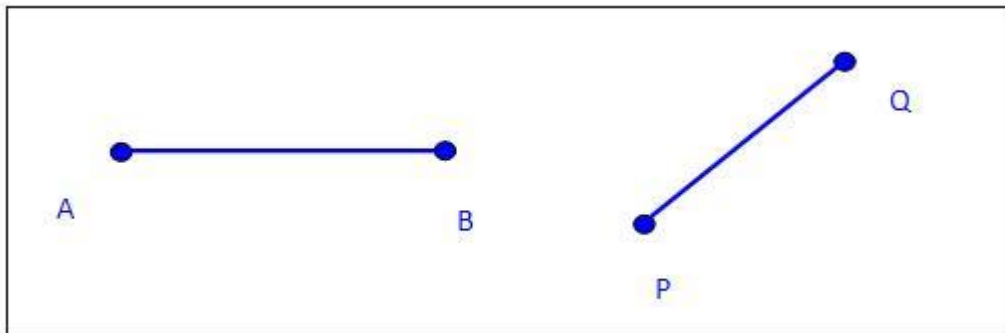
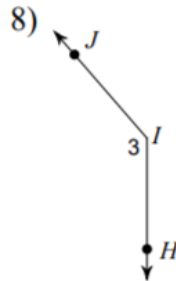
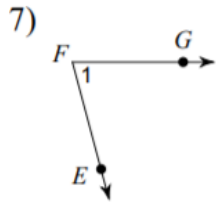
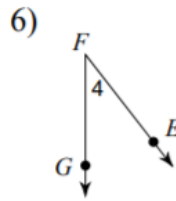
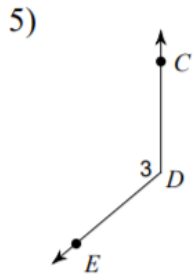
Lines, Rays, and Angles

Name	What it looks like	Think	
point D		A point names a location in space.	
line AB ; \overleftrightarrow{AB} line BA ; \overleftrightarrow{BA}		A line extends without end in opposite directions.	
line segment AB ; \overline{AB} line segment BA ; \overline{BA}		"Segment" means part. A line segment is part of a line. It is named by its two endpoints.	
ray MN ; \overrightarrow{MN} ray NM ; \overrightarrow{NM}		A ray has one endpoint and extends without end in one direction. A ray is named using two points. The endpoint is always named first.	
angle XYZ ; $\angle XYZ$ angle ZYX ; $\angle ZYX$ angle Y ; $\angle Y$		Two rays or line segments that share an endpoint form an angle. The shared point is the vertex of the angle.	
A right angle forms a square corner.	An acute angle opens less than a right angle.	An obtuse angle opens more than a right angle and less than a straight angle.	A straight angle forms a line.
			

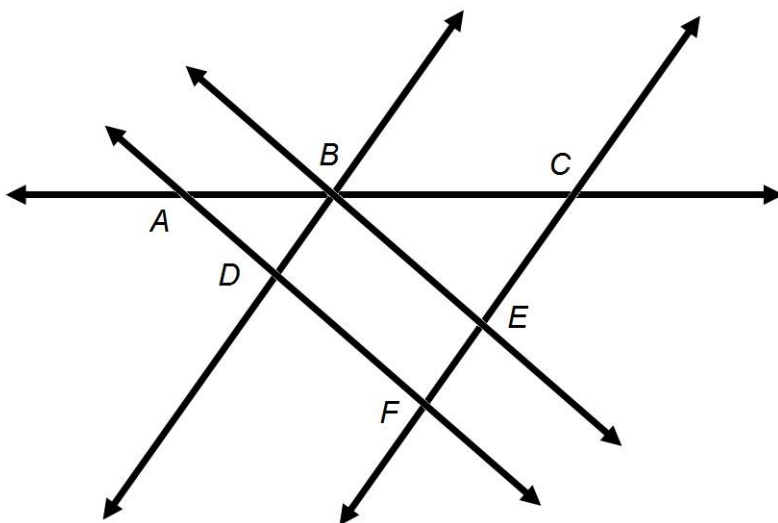
Notice that it's possible to name a line using the letters and the line symbol over them, or saying "line AB ." Either works!

Name the following Geometric objects according to the above naming conventions.

Important: When naming a point, you should use one capital letter; segments/lines should have two capital letters.



Name as many **LINE SEGMENTS** from the following picture as you can:



ADDITIONAL PRACTICE FOR COLLEGE PREP 432 AND FRANSISCAN 431**Rational, Radical and Exponential Expressions**

1. Simplify $\sqrt[3]{27}$

2. Simplify $\left(\frac{81}{64}\right)^{\frac{1}{2}}$

3. Simplify $\sqrt{196x^4y^6}$

4. Simplify $\frac{16x^4 - 8x^2 + 16}{(x+4)(x+2)}$

Systems of Equations and Linear Inequalities

5. Solve the following system of equations using **substitution**

$$\begin{cases} 2x + 5y = -5 \\ x + 3y = 3 \end{cases}$$

6. Solve the following system of equations using **elimination**

$$\begin{cases} 6x + 2y = 8 \\ 4x + 2y = 10 \end{cases}$$

7. In one week, a music store sold 9 guitars for a total of \$3611. Electric guitars sold for \$479 each and acoustic guitars sold for \$339 each. How many of each type of guitar were sold? Set up a system of equations and use any method to solve.

Polynomials and Factoring

8. Multiply and simplify: $7(-5v - 8) =$

9. Multiply and simplify: $(n^2 + 6n - 4)(2n - 4) =$

10. Simplify: $\frac{-32x^3y^2z^4}{8x^6y^2z} =$

11. Factor completely: $3x^3 + 6x^2 + 27x =$

