

# Summer Geometry Packet for Rising 8<sup>th</sup> Graders

Name \_\_\_\_\_

Dear Students and Parents,

I am very excited about your upcoming year! I have created this math packet for you to work over the summer. It contains problems that I think you will know based on the things that you have learned in during this school year. It is designed to review the math skills needed to be successful in Geometry.

This packet also includes some reference materials to review before school starts. It contains lots of vocabulary that the you would have learned in geometry units in Elementary School through Pre-Algebra. You all skipped Pre-Algebra 😊 – so I want you all to look over these words and we will see what is totally new to you and things that I need to help you remember from years past. I am not worried at all if a lot of these words are new to you. It is just vocabulary. We will learn it together!

Please do your very best on this packet. It will count as your first test grade. It is due on the first full day of school, Monday, August 10<sup>th</sup>.

I can't wait to see you in the fall!

Student Signature \_\_\_\_\_

Parent Signature \_\_\_\_\_

# MIDWAY COVENANT CHRISTIAN SCHOOL

## 2020 - 2021 School Year Calendar

July 30th - 31st	New Hire Orientation	
August 3rd - 5th	Pre-Planning for Teachers	
August 6th	Meet & Greet (9:00am - 11:00am)	
August 7th	1/2 day - 12:30 dismissal from the classroom	<b>EARLY DISMISSAL</b>
August 10th	First FULL Day of School	
September 7th	Labor Day/Student & Staff Holiday	NO SCHOOL
September 28th - October 2nd	Fall Break/Student & Staff Holiday	NO SCHOOL
October 19th - 21st	Fall Conferences - <b>EARLY DISMISSAL</b> at 12:30	
October 22nd - 23rd	Reformation Conference Break/Student & Staff Holiday	NO SCHOOL
November 23rd - 27th	Thanksgiving Break/Student & Staff Holiday	NO SCHOOL
December 18th	Christmas Chapel/ <b>EARLY DISMISSAL</b> at 11:00	
December 21st - January 1st	Christmas Break/Student & Staff Holiday	NO SCHOOL
January 4th	Student Holiday/Teacher Work Day	NO SCHOOL
January 18th	MLK Day - Student/Staff Holiday	NO SCHOOL
February 15th - 16th	Winter Break - Student/Staff Holiday	NO SCHOOL
March 24th	Spring Conference/ <b>Early Dismissal 12:30</b> / Teacher Work Day	
April 2nd	Good Friday - Student/Staff Holiday	NO SCHOOL
April 5th - 9th	Spring Break - Student/Staff Holiday	NO SCHOOL
April 26th - 30th	IOWA Testing Week 2nd-8th/ <b>EARLY DISMISSAL</b> at 12:30	
May 7th	K4 - 8th Mother's Day Luncheon - <b>EARLY DISMISSAL</b> at 12:30	
May 13th	Last Day of School for K3	
May 20th	K4 & K5 - <b>EARLY DISMISSAL</b> at 11:00	
May 21st	K4 & K5 Awards Day/Last Day/ <b>EARLY DISMISSAL</b> (approx. 10:00)	
May 25th	8th Grade Graduation, 7:00pm	
May 27th	1st - 7th Grade Field Day - <b>EARLY DISMISSAL</b> at 11:30	
May 28th	1st - 7th Grade Awards Day/Last Day/ <b>EARLY DISMISSAL</b> (approx. 10:30)	
June 1st - 3rd	Post-Planning for Teachers	

Quarters (2nd-8th)  
Terms (K3-1st)

**Oct. 9 (40) Dec. 18 (43) March 12 (46) May 28 (49)**  
**Sept. 18 (30) Nov. 6 (28) Dec. 18 (25), Feb. 19 (31) April 1 (29) May 28 (35)**

\*Summer  
Packet Due

Geometry Summer Assignment Name: \_\_\_\_\_

1. Solving equations

a)  $2x - 16 = 8$

b)  $2y - 3 + 5y = 9$

c)  $7x + 9 = 13x - 27$

d)  $-8w + 34 = 5w - 18$

e)  $3(5x + 10) = 180$

f)  $\frac{1}{2}(9x + 14) = 59$

g)  $x^2 - 14 = 16$

h)  $5y^2 + 18 = 63$

## 2. Proportions and Fractions

Solve each proportion

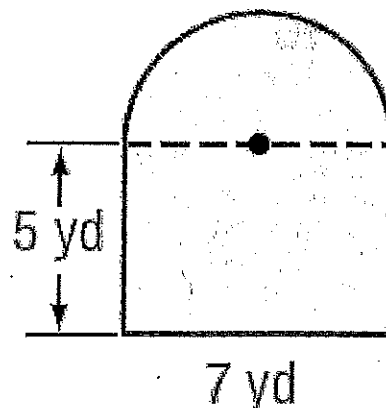
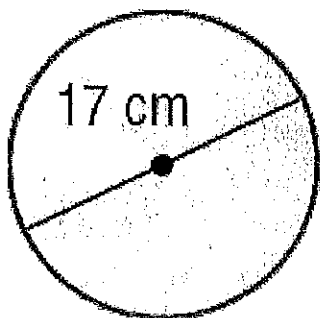
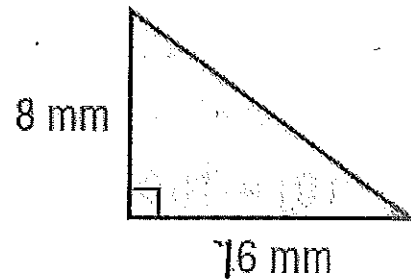
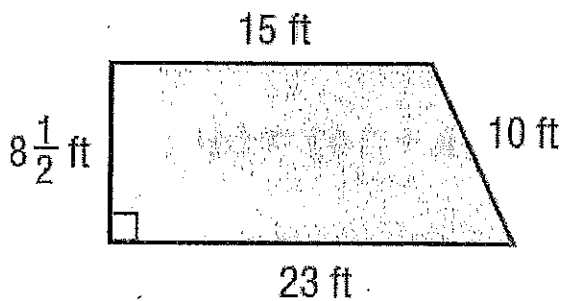
a)  $\frac{5x}{7} = \frac{8}{9}$

b)  $\frac{2}{5} = \frac{3}{y}$

c)  $\frac{x-2}{4} = \frac{x+3}{6}$

d)  $\frac{2x-5}{6} = \frac{10}{3}$

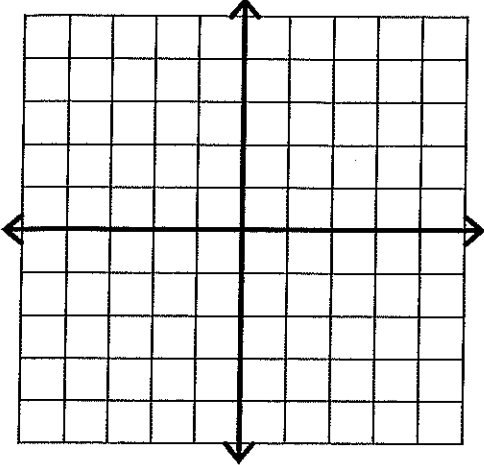
3. Area and Perimeter. Find area and perimeter for each shape. (Leave answers for circles in terms of  $\pi$ )



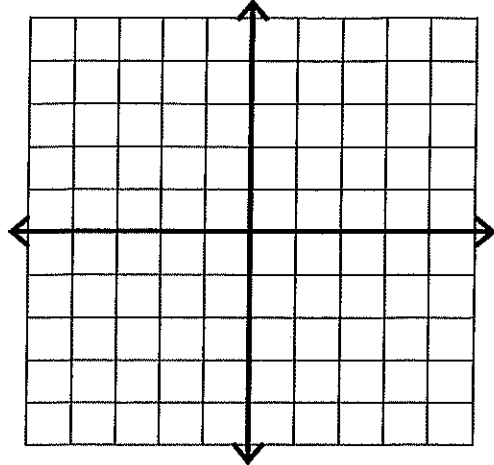
#### 4. Linear equations

Graph each line.

$$y = \frac{1}{2}x - 1$$



$$2x + 3y = 6$$



List slope and x and y intercepts for the lines above.

$$m = \underline{\hspace{2cm}}$$

$$x \text{ int} = \underline{\hspace{2cm}}$$

$$y \text{ int} = \underline{\hspace{2cm}}$$

$$m = \underline{\hspace{2cm}}$$

$$x \text{ int} = \underline{\hspace{2cm}}$$

$$y \text{ int} = \underline{\hspace{2cm}}$$

Find the slope of the line through each pair of points and write an equation for the line through them in  $\hspace{2cm}$  and slope intercept form.

a) A(-5, 3) B(1, -1)

b) C(9/2, 6) D(7, -4)

## 5. Quadratics and Parabolas

Graph the parabola  $y = (x - 2)^2 + 1$

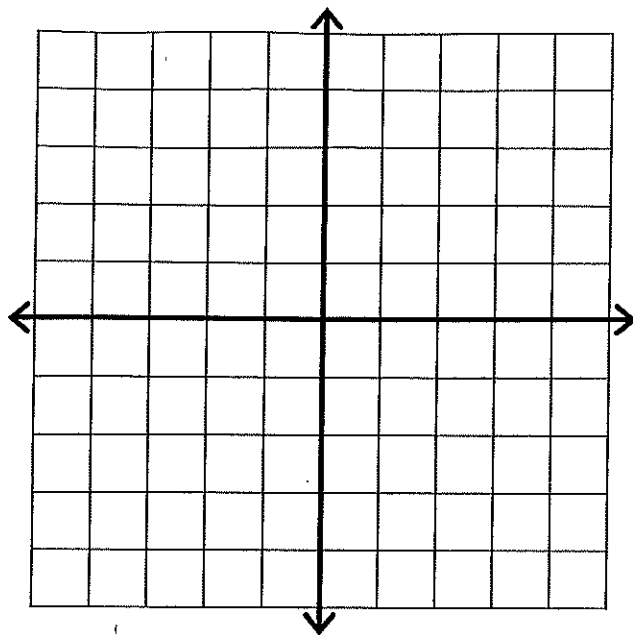
State each of the following

Vertex \_\_\_\_\_

Axis of Symmetry \_\_\_\_\_

Y intercept \_\_\_\_\_

X intercepts (roots) \_\_\_\_\_



Factor each of the following expressions

$$4x^2y - 10xy^2$$

$$30a^2b - 60ab^2 + 90a^2b^2$$

$$x^2 + 15x + 56$$

$$5y^2 - 12x - 9$$

Solve each equation

$$(y - 5)(2y + 3) = 0$$

$$x^2 - 11x + 10 = 0$$

6. Simplify each of the following expressions

$$-\sqrt{275}$$

$$3\sqrt{12}$$

$$\sqrt{\frac{36}{25}}$$

$$2\sqrt{54} - 3\sqrt{96}$$

$$\sqrt{3}(\sqrt{5} + \sqrt{3})$$

$$(4a^2bc)(-2b^3c^2)$$

$$4ab(3a^2 - 7b)$$

$$(6g - 7)(6g + 7)$$

$$\frac{15x^4y^2z^5}{3x^2z^3}$$

$$5(5 + t) - 3(t - 6)$$

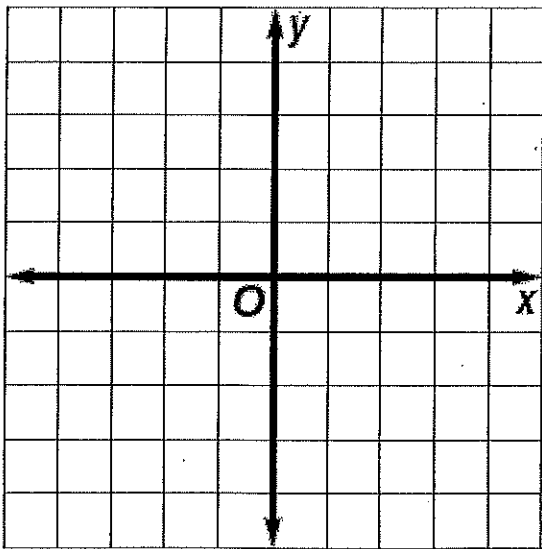
7. Solve each system of equations.

$$y = 6x$$
$$2x + 3y = -20$$

$$2x - 4y = -22$$
$$3x + 3y = 30$$

Solve the system by graphing.

$$2x - y = 1$$
$$y = -3$$



8. Simplify each expression  
(Number Sense)

*No Calculator!*

$$15 + (-19) - 8 + (-5)$$

$$18 - 29$$

$$5 - 6(-4 + 3)$$

$$(-23) + (-42) + (91)$$

$$23 + 8(-9 - 7)$$



$$(-9)(3)(-1)(-4)$$

$$-6^2 - 4(-3)^2$$

$$7^2 - 8(2 - 9)$$

$$-4^3 + 8(-3)(-2)$$

Evaluate each of the following if  $x = -5$ ,  $y = 7$ , and  $z = -3$

$$xy - z$$

$$x^2y + z^3$$


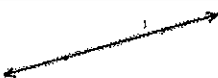









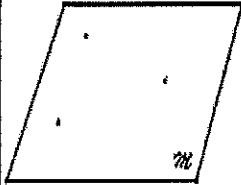






$$x(yz - x^2)$$

$$x + y + z - xyz$$

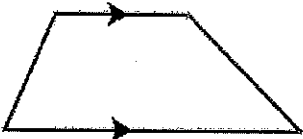
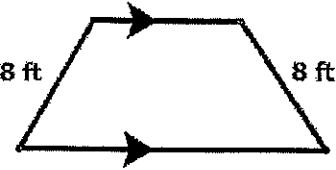
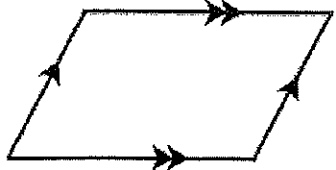
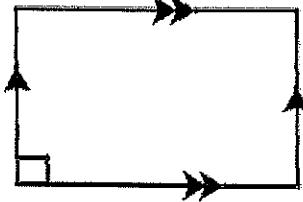
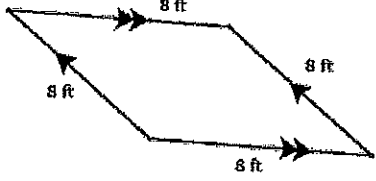
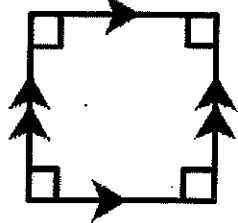
GEOMETRY REVIEW/PREVIEW (REFERENCE SHEETS)

You should know the following vocabulary from previous math classes. Please review the terms and definitions.

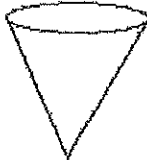
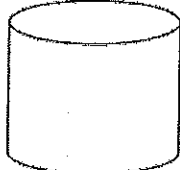

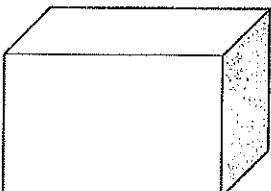
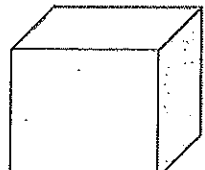
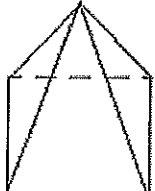
The three undetermined terms in geometry are: point, line and plane. These are also called the “Building Blocks of Geometry” because everything is based on these 3 ideas. We are able to describe them but not able to define them.

Vocabulary Term	Description/Definition	Diagram	Symbol Explanation	Symbol
Point	A <b>point</b> is the basic unit in geometry. It has no size – infinitely small. It represents locations. Use a dot to represent a point.		Name a point by using a capital printed letter.	A
Line	A <b>line</b> is a straight arrangement of points – it is made up of an infinite number of points. It extends infinitely in two directions but has no thickness.		Name a line by using 2 points that are on the line and putting  above these 2 letters. The letters may be in any order.	 
Line Segment	A <b>line segment</b> consists of 2 points and all the points between them that lie on the line containing them.		Name a line by using 2 points that are on the line and putting  above the 2 letters. The letters may be in any order.	 
Ray	A <b>ray</b> is a part of a line. It contains one endpoint and all of the points on that line to one side of it.		Always name a ray by two points. First name the endpoint, then name the point that it goes through. Put a ray <u>symbol</u> above the letters: Note: the ray symbol always faces to the right, no matter which way the ray is facing.	
Plane	A <b>plane</b> has length and width but no thickness – it is a flat surface that extends indefinitely.		Name a plane by either 3 points that are on the plane or a capital script letter that can be found in the corner of the plane.  Note: you may not name a plane with 3 points that are all on the same line.	       plane <i>M</i> <i>M</i>

- There are special kinds of quadrilaterals.

<p><b>Trapezoid:</b> has one pair of parallel sides (called bases... shown to be parallel by use of arrows)</p> 	<p><b>Isosceles Trapezoid:</b> has one pair of parallel sides and the other two sides are the same length</p> 	<p><b>Parallelogram:</b> has two pairs of parallel sides</p> 
<p><b>Rectangle:</b> parallelogram with four right angles</p> 	<p><b>Rhombus:</b> parallelogram with four sides that are the same length</p> 	<p><b>Square:</b> parallelogram with four right angles and four sides that are the same length</p> <p>All sides measure 5 feet</p> 

- Three dimensional figures

<p><b>Cone</b></p> 	<p><b>Cylinder</b></p> 	<p><b>Sphere</b></p> 
<p><b>Rectangular Prism</b></p> 	<p><b>Cube (prism with 6 square faces that are the same size)</b></p> 	<p><b>Pyramid</b></p> 

$\pi$  equals approximately 3.14

Circumference	circle	$C = 2\pi r$
Area	triangle	$A = \frac{1}{2}bh$
	trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$
	circle	$A = \pi r^2$
Surface Area	right cylinder	$S = 2\pi rh + 2\pi r^2$
	sphere	$S = 4\pi r^2$

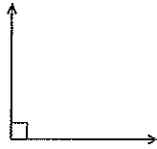
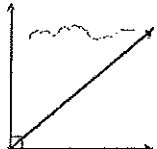
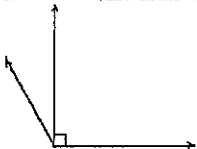
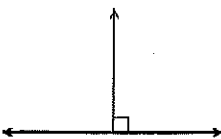
Volume

rectangular prism	$V = lwh$
cylinder	$V = \pi r^2 h$
cone	$V = \frac{1}{3}\pi r^2 h$
sphere	$V = \frac{4}{3}\pi r^3$

Pythagorean Theorem

right triangle	$a^2 + b^2 = c^2$
	

- Angles

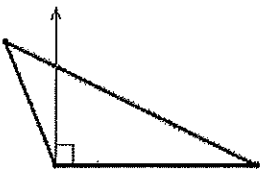
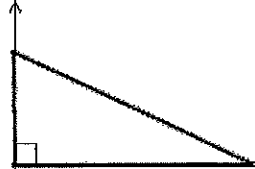
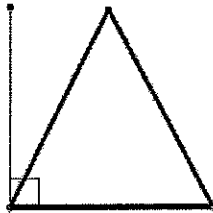
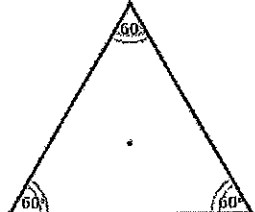
<p><b>Right Angle:</b> measures exactly <math>90^\circ</math></p> 	<p><b>Acute Angle:</b> Measures more than <math>0^\circ</math> and less than <math>90^\circ</math></p> 	<p><b>Obtuse Angle:</b> Measures more than <math>90^\circ</math> and less than <math>180^\circ</math></p> 	<p><b>"Straight Angle":</b> Measures <math>180^\circ</math></p> 
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- Polygons

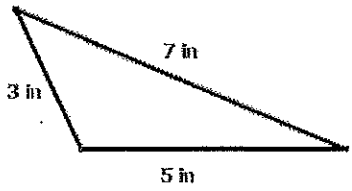
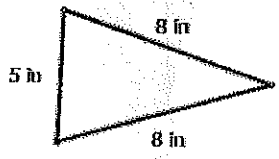
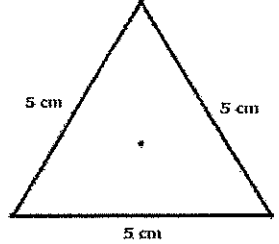
# of Sides	Name
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon

# of Sides	Name
7	Septagon
8	Octagon
9	Nonagon
10	Decagon

- There are special kinds of triangles. Triangles may be classified by their angle measures.

<p><b>Obtuse Triangle:</b> has one obtuse angle and two acute angles</p> 	<p><b>Right Triangle:</b> has one right angle and two acute angles</p> 	<p><b>Acute Triangle:</b> has three acute angles</p> 	<p><b>Equiangular Triangle:</b> special kind of acute triangle, all 3 angles measure <math>60^\circ</math></p> 
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Triangles may also be classified by their side lengths.

<p><b>Scalene Triangle:</b> no sides are the same length</p> 	<p><b>Isosceles Triangle:</b> at least two sides are the same length</p> 	<p><b>Equilateral Triangle:</b> all three sides are the same length</p> 
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