6th Grade Summer Math

Here are some helpful hints for success:

- It's ok to have parents or other adults help you.
- Find a quiet work space where you can get organized and stay focused.
- Pay close attention to the examples and vocabulary.
- Complete all the problems on each page.
- Do NOT use calculators. You need these skills for middle school, so you need to continue practicing.
- The packet should be returned to your math teacher on the first day of school.

Have a great summer and we will see you in August!

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Algebra, Patterns, and Functions
Objective: Write equations and **inequalities - B**

An **inequality** is a mathematical sentence that contains the symbols $\langle$, $\rangle$, $\leq$, or $\geq$.

Words	Symbols
m is greater than 7.	$m > 7$
r is less than -4.	$r < -4$
t is greater than or equal to 6.	$t \geq 6$
y is less than or equal to 1.	$y \leq 1$

Examples:

1) Two times a number is greater than 10 **$2x \rangle 10$**
2) Three less than a number is less than or equal to 7. **$x - 3 = 7$**
3) The sum of a number and 1 is at least 5. **$x + 1 \geq 5$**
4) Cody has \$50 to spend. How many shirts can he buy at \$16.50 each? **$16.50x \leq 50$**

Write an inequality for each of the following:

1.) Five times a number is greater than 25.

2.) The sum of a number and 6 is at least 15.

3.) 24 divided by some number is less than 7.

4.) Five dollars less than two times Chris' pay is at most \$124.

5.) In Ohio, you can get your license when you turn 16. Write an inequality to show the age of all drivers in Ohio.

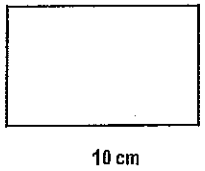
6.) Suppose a DVD costs \$19 and a CD costs \$14. Write an inequality to find how many CDs you can buy along with one DVD if you have \$65 to spend.

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

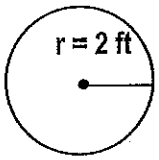
Unit: Knowledge of Algebra, Patterns, and Functions
Objective: Apply given formulas to a problem-solving situation using formulas having no more than three variables.

Example 1:
The perimeter of a rectangle is twice the length (L) plus twice the width (W). **P = 2L + 2W**
Use the given formula to find the perimeter of the rectangle.



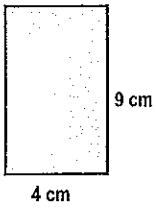
P = 2L + 2W	Write the equation
P = 2(10) + 2(8)	Replace L and W with the length and width
P = 20 + 16	Multiply
P = 36 cm	Simplify and add the correct label

Example 2:
The area *A* of a circle equals the product of pi (**π**) and the square of its radius (**r**). **$A = \pi r^2$** **($\pi \approx 3.14$)**
Use the given formula to find the area of the circle.

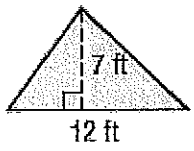


$A = \pi r^2$	Write the equation
$A = 3.14 \cdot (2)^2$	Replace **π** with 3.14 and **r** with 2
$A = 3.14 \cdot 4$	Square the 2
$A = 12.56\ ft^2$	Simplify and add the correct label

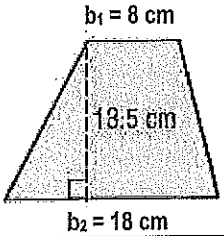
1.) The formula for finding the area of a rectangle is **A = L • W**. Use this formula to find the area of the rectangle.



2.) The formula for finding the area of a triangle is **$A = \frac{1}{2}bh$**. Find the area of the triangle below.

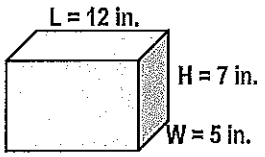


3.) A trapezoid has two bases (b_1 and b_2). The formula for finding the area of a trapezoid is: $A = \frac{1}{2}h(b_1 + b_2)$



Find the area of the trapezoid.

4.) The formula for finding the volume of a rectangular prism is **V = L • W • H**. Find the volume of the box.



5.) Margot planted a rectangular garden that was 18 feet long and 10 feet wide. How many feet of fencing will she need to go all the way around the garden? **P = 2L + 2W**

6.) Juan ran all the way around a circular track one time. The diameter (d) of the track is 60 meters. The formula for circumference of a circle is **C = πd**. Use this formula to find out how far Juan ran.

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Algebra, Patterns, and Functions
Objective: Graph ordered pairs in a coordinate plane.

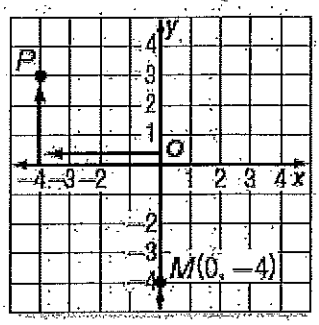
The **coordinate plane** is used to locate points. The horizontal number line is the ***x*-axis**. The vertical number line is the ***y*-axis**. Their intersection is the **origin**.
Points are located using **ordered pairs**. The first number in an ordered pair is the ***x*-coordinate**; the second number is the ***y*-coordinate**.
The coordinate plane is separated into four sections called **quadrants**.

Example 1: Name the ordered pair for point P. Then identify the quadrant in which P lies.

- Start at the origin.
- Move 4 units left along the *x*-axis.
- Move 3 units up on the *y*-axis.

The ordered pair for point P is (- 4, 3).
P is in the upper left quadrant or quadrant II.

Quadrant 2 Quadrant 1



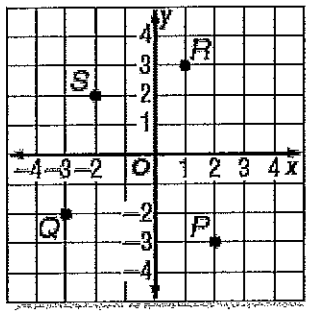
Quadrant 3 Quadrant 4

Example 2: Graph and label the point M (0, - 4).

- Start at the origin.
- Move 0 units along the x-axis.
- Move 4 units down on the y-axis.
- Draw a dot and label it M(0, - 4).

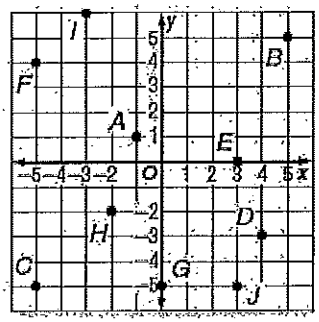
1.) Name the ordered pair for each point graphed at the right. Then identify the quadrant in which each point lies.

	Coordinates	Quadrant
P	(___, ___)	____
Q	(___, ___)	____
R	(___, ___)	____
S	(___, ___)	____



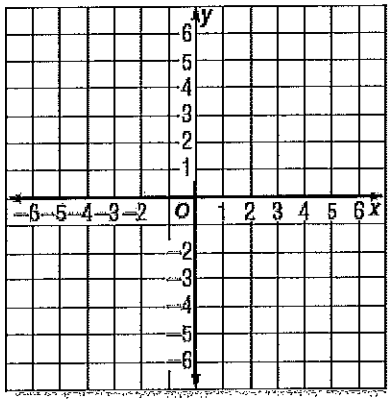
2.) Find each of the points below on the coordinate plane. Then identify the quadrant in which each point lies.

	Coordinates	Quadrant
A	(___, ___)	____
J	(___, ___)	____
B	(___, ___)	____
H	(___, ___)	____



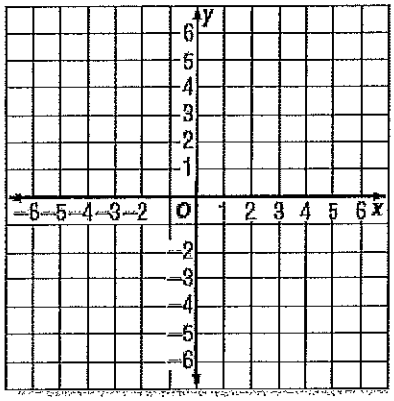
3.) Graph and label each point on the coordinate plane.

N	(3, -1)
P	(-2, 4)
Q	(-3, -4)
R	(0, 0)
S	(-5, 0)



4.) Graph and label each point on the coordinate plane.

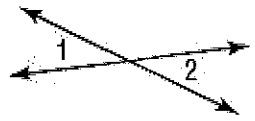
D	(0, 4)
E	(5, 5)
G	(-3, 0)
H	(-6, -2)
J	(0, -2)



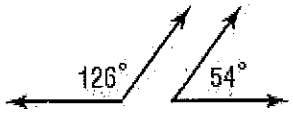
On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

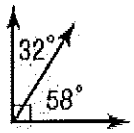
Unit: Knowledge of Geometry
Objective: Identify and describe angles formed by intersecting lines, rays, or line segments - **B**
Examples:



When two lines intersect, they form two pairs of opposite angles called **vertical angles**, which are always congruent.
Congruent angles have the same measure.
$\angle 1 \cong \angle 2$ means that angle 1 is congruent to angle 2.

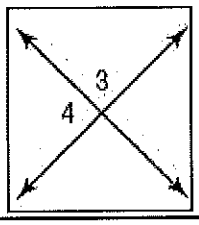


Two angle are **supplementary** if the sum of their measures is 180°.
126° + 54° = 180°

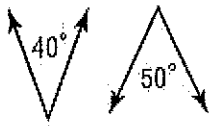


Two angles are **complementary** if the sum of their measures is 90°.
32° + 58° = 90°

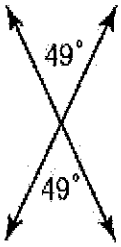
1.) Classify the angles as **complementary, supplementary,** or **neither.**



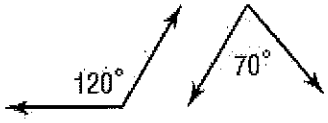
2.) Classify the angles as **complementary, supplementary,** or **neither.**



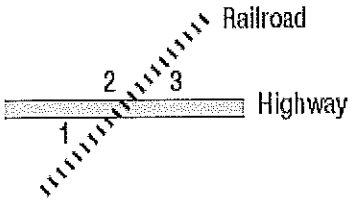
3.) Classify the angles as **complementary, supplementary,** or **neither.**



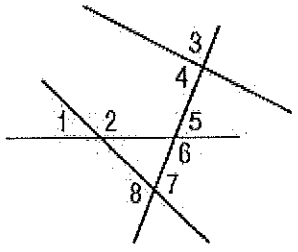
4.) Classify the angles as **complementary, supplementary,** or **neither.**



5.) A map shows a railroad crossing a highway, as shown below. Which of the numbered angles are vertical angles?



6.) In a game of pick-up-sticks, the last 4 sticks are shown below. Which of the numbered angles are vertical angles?



On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Geometry
Objective: Determine the measure of angles formed by intersecting lines, line segments, and rays.

Example 1: Find the value of **x** in the figure.
The two angles are supplementary, so the sum of their measures is 180°.

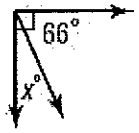
$$x + 35 = 180$$
$$-35 \quad -35$$
$$x = 145$$

Write the equation
Subtract 35 from both sides
Simplify
The angle is 145°

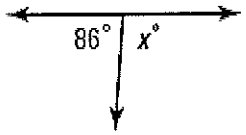
Example 2: Find the value of **x** in the figure.
The two angles are complementary, so the sum of their measures is 90°.

$$x + 66 = 90$$
$$-66 \quad -66$$
$$x = 24$$

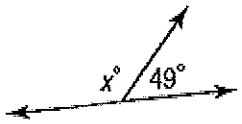
Write the equation
Subtract 66 from both sides
Simplify
The angle is 24°



1.) Find the value of **x.**

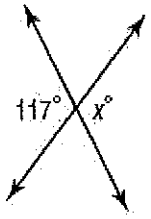


2.) Find the value of **x.**

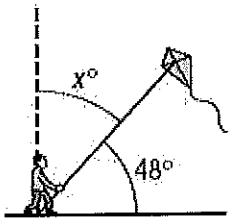


3.) Find the value of **x.**

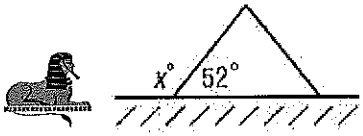
4.) Find the value of **x.**



5.) A kite string makes an angle of 48° with respect to the ground as shown below. The dashed line is vertical and the ground is horizontal. How are the 48° angle and the unknown angle related? What is the value of x ?



6.) A side view of the Great Pyramid at Giza is shown below. The sides of the pyramid make an angle of 52° with respect to the ground. What is the value of x?

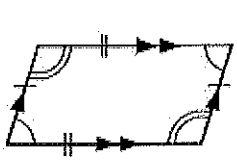


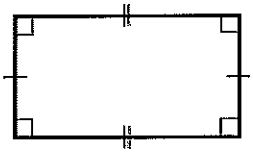
On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

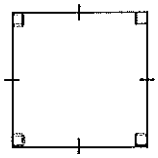
Pre-Algebra – Summer Math Packet

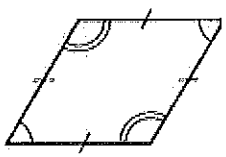
Unit: Knowledge of Geometry
Objective: Determine a missing angle using the sum of the interior angles in a quadrilateral

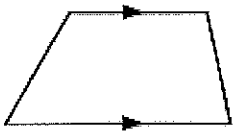
Examples of Quadrilaterals:


Parallelogram


Rectangle

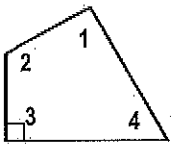

Square


Rhombus

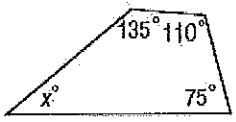

Trapezoid

The sum of the measures of the angles of a quadrilateral is 360°.

$m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 = 360°$



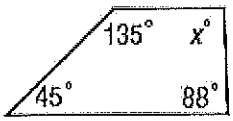
Example: Find the missing measure in the quadrilateral.



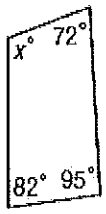
135 + 110 + 75 + x = 360	**The sum of the measures is 360°**
320 + x = 360	**Simplify**
- 320 - 320	**Subtract 320 from each side**
x = 40	**The missing angle is 40°**

Find the missing measure in each of the following quadrilaterals.

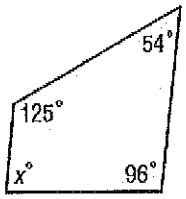
1.)



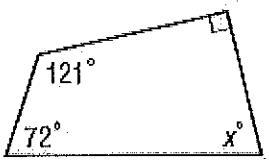
2.)



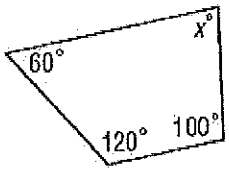
3.)



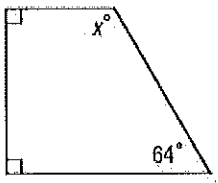
4.)



5.) The top of Mrs. Hartsock's coffee table is shown below. Find the measure of the missing angle.



6.) Maria needs to cut a piece of carpet to fit the space drawn below. What should the measure of the missing angle be?



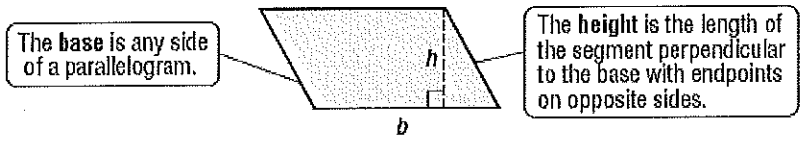
On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Measurement
Objective: Estimate and determine the area of quadrilaterals using **parallelograms** or trapezoids – **A**.

The area **A** of a parallelogram equals the product of its base **b** and its height **h**. Because rectangles, rhombuses, and squares are all parallelograms, the formula for finding the area of a parallelogram is also used to find the areas of each of these figures.

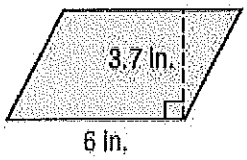
A = bh



Example: Find the area of a parallelogram if the base is 6 inches and the height is 3.7 inches.

Estimate: A = 6 • 4 or 24 in^2

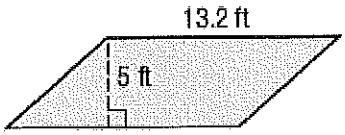
Calculate: **A =bh** Area of a parallelogram
A = 6 • 3.7 Replace **b** with 6 and **h** with 3.7
A = 22.2 Multiply



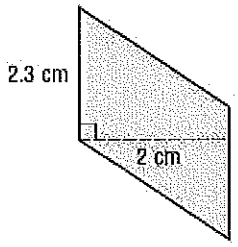
Check: The area of the parallelogram is 22.2 square inches. This is close to the estimate.

Find the area of each parallelogram. Round to the nearest tenth if necessary.

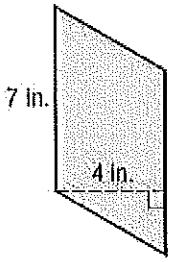
1.)



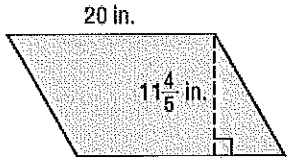
2.)



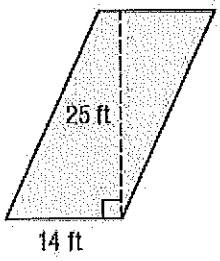
3.)



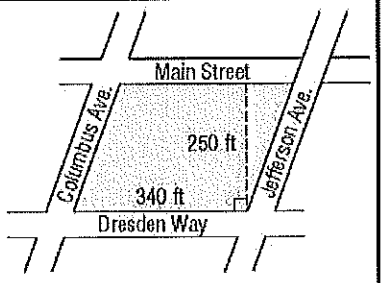
4.)



5.) Joyce wants to construct a sail with the dimensions shown. How much material will be used?



6.) Two parallel streets are cut across by two other parallel streets as shown in the figure. What is the area of the grassy area in the middle?



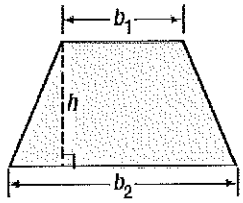
On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

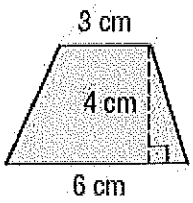
Unit: Knowledge of Measurement
Objective: Estimate and determine the area of quadrilaterals using parallelograms or **trapezoids – B.**

A trapezoid has two bases, b_1 and b_2. The height of a trapezoid is the distance between the two bases. The area **A** of a trapezoid equals half the product of the height **h** and the sum of the bases b_1 and b_2.

$$A = \tfrac{1}{2} h(b_1 + b_2)$$



Example: Find the area of the trapezoid.

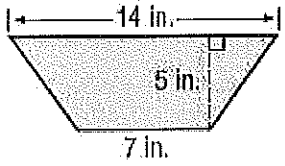


$A = 1/2\ h\ (b_1 + b_2)$ Area of a trapezoid
$A = 1/2\ (4)\ (3 + 6)$ Replace **h** with 4, b_1 with 3, and b_2 with 6.
$A = 18$

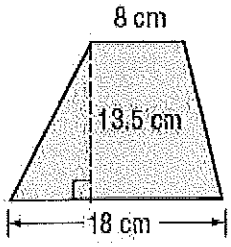
The area of the trapezoid is 18 square centimeters.

Find the area of each trapezoid. Round to the nearest tenth if necessary.

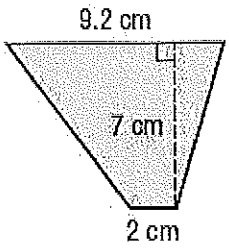
1.)



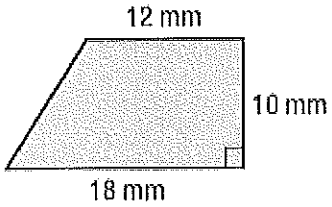
2.)



3.)

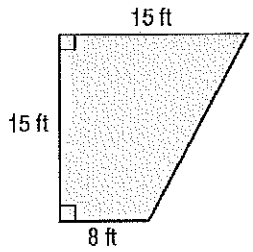


4.)



5.) Arkansas has a shape that is similar to a trapezoid with bases of about 182 miles and 267 miles and a height of about 254 miles. Estimate the area of the state.

6.) Greta is making a patio with the dimensions given in the figure. What is the area of the patio?



On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Statistics

Objective: Compare the measures of central tendency (mean, median, mode) to determine which is most appropriate.

Examples:

	MEAN	MEDIAN	MODE
What is it?	Average	Middle #	# shown the MOST often
How to find it?	Sum of Data (+) # of Data Points (÷)	Order data from least to greatest, then find the middle # 2 middle #s - Average	Look at data & Find the # that appears the most. 2 modes – Bimodal
Most Useful when:	-- Data has no outliers Outliers are REALLY low & high #s	-- Data has outliers -- There are no large gaps in the middle of the data	-- Data has many identical (same) #s

Use the table at the right.

Find the mean, median, & mode of the data.

Mean: 488.3

Median: 150

Mode: None

Caribbean Islands			
Island	**Area (Sq Mi)**	**Island**	**Area (Sq Mi)**
Antiqua	**108**	**Martinique**	**425**
Aruba	**75**	**Puerto Rico**	**3,339**
Barbados	**166**	**Tobago**	**116**
Curacao	**171**	**Virgin Islands, UL**	**59**
Dominica	**290**	**Virgin Islands, US**	**134**

Which measure of central tendency would be misleading in describing the size of the islands? Explain.

The mean could be misleading since the areas of all but one of the islands are less than that value.

Which measure would most accurately describe the data? Median

Use the table that shows the miles of shoreline for five states to answer questions 1 – 3.

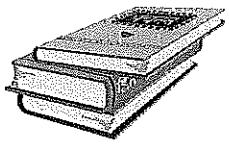
Miles of Shoreline	
State	**Length of Shoreline (mi)**
Virginia	3,315
Maryland	3,190
Washington	3,026
North Carolina	3,375
Pennsylvania	89

1.) Determine the mean, median, and mode of the data.

2.) Which measure of central tendency is misleading in describing the miles of shoreline for the states? Explain.

3.) Which measure of central tendency most accurately describes the data? Explain.

Book Sales: Use the table below that shows the number of books sold each day for 20 days to answer questions 4 – 5.



Book Sales Per Day			
23	18	23	15
24	16	0	11
19	10	13	17
12	23	11	16
36	24	12	27

4.) Determine the mean, median, & mode of the data.

5.) Which measure of central tendency would be misleading in describing the book sales & which measure most accurately describes the data? Explain.

6.) Michael & Melissa both claim to be earning a C average, 70% to 79%, in their Latin Class. Use the table below to explain their reasoning and determine which student is earning a C average.

GRADES (%)							
	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7
Michael	80	76	73	70	40	25	10
Melissa	88	83	75	70	60	65	62

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Number Relationships & Computation
Objective: Determine equivalent forms of rational numbers expressed as **fractions, decimals**, percents, and ratios. - **A**
Examples:

To write a decimal as a fraction, divide the numerator of the fraction by the denominator.
Use a power of ten in the denominator to change a decimal to a fraction.

Write $\frac{5}{9}$ as a decimal.

$$9\overline{)5.000} = 0.555\ldots = 0.\overline{5}$$

$$\begin{array}{r} 0.555 \\ 9\overline{)5.000} \\ -45\downarrow \\ \hline 50 \\ -45\downarrow \\ \hline 50 \\ -45 \\ \hline \end{array}$$

because 5 repeats forever.

Write 0.32 as a fraction in simplest form. **0.32 =** $\frac{32}{100} = \frac{\div 4}{\div 4} = \frac{8}{25}$

5/1.) Write 0.735353535... using bar notation to represent the repeating decimal.	**2.)** Write $\frac{3}{5}$ as a decimal.
3.) Write $4\frac{5}{8}$ as a decimal.	**4.)** Write 0.94 as a fraction in simplest form.
5.) Write 0.48 as a fraction in simplest form.	**6.)** There were 6 girls and 18 boys in Mrs. Johnson's math class. Write a ratio of the # of girls to the # of boys in fraction form. Then write the fraction as a repeating decimal.

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

Unit: Knowledge of Number Relationships & Computation
Objective: Determine equivalent forms of rational numbers expressed as **fractions**, decimals, **percents, and ratios.- B**
Examples:

A RATIO is a comparison of two numbers by division. When a ratio compares a number to 100, it can be written as a PERCENT. To write a ratio or fraction as a percent, find an equivalent fraction with a denominator of 100. You can also use the meaning of percent to change percents to fractions.

Write $\frac{19}{20}$ **as a percent.**

$$\frac{19}{20}\ \frac{\bullet 5}{\bullet 5} = \frac{95}{100} = 95\%$$ **Since 100 ÷ 20 = 5, multiply the numerator and denominator by 5.**

Write 92% as a fraction in simplest form.

$$\frac{92}{100} = \frac{\div 4}{\div 4} = \frac{23}{25}$$

Write 92% as a decimal. **Move decimal two places to the left. Add zeros if needed.** **92.0% = 0.92**

Write 0.4 as a percent. **Move decimal two places to the right. Add zeros if needed.** **0.4 = 40%**

1.) Write $\frac{7}{25}$ as a percent and decimal.	**2.)** Write 19% as a decimal and fraction in simplest form.
3.) Write $\frac{9}{50}$ as a percent and decimal.	**4.)** Write 75% as a decimal and fraction in simplest form.
5.) Ms. Crest surveyed her class and found that 15 out of 30 students brushed their teeth more than twice a day. Write this ratio as a fraction in simplest form, then write it as a % and a decimal.	**6.)** A local retail store was having a sale and offered all their merchandise as a 25% discount. Write this percent as a fraction in simplest form, then write it as a decimal.

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Pre-Algebra – Summer Math Packet

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Unit: Knowledge of Number Relationships & Computation
Objective: Add, subtract, and multiply positive fractions and mixed numbers. - **A**
Examples:

- **To add unlike fractions (fractions with different denominators), rename the fractions so there is a common denominator.**

Add: $\frac{1}{6}+\frac{2}{5}=$ $\frac{1}{6}=\frac{1\bullet5}{6\bullet5}=\frac{5}{30}$ $\frac{2}{5}=\frac{2\bullet6}{5\bullet6}=\frac{12}{30}$

$\frac{5}{30}+\frac{12}{30}=\frac{17}{30}$

Add: $12\frac{1}{2}+8\frac{2}{3}=$ $12\frac{1}{2}=12\frac{1\bullet3}{2\bullet3}=12\frac{3}{6}$ $8\frac{2}{3}=8\frac{2\bullet2}{3\bullet2}=8\frac{4}{6}$

$12\frac{3}{6}+8\frac{4}{6}=20\frac{7}{6}$ $\frac{7}{6}$ is improper so we must change it to proper. 7 divided by 6 = $1\frac{1}{6}$

$20+1\frac{1}{6}=21\frac{1}{6}$

1.) Add: $\frac{1}{3}+\frac{1}{9}$

2.) Add: $7\frac{4}{9}+10\frac{2}{9}$

3.) Add: $1\frac{5}{9}+4\frac{1}{6}$

4.) Add: $2\frac{1}{2}+2\frac{2}{3}$

5.) A quiche recipe calls for $2\frac{3}{4}$ cups of grated cheese. A recipe for quesadillas requires $1\frac{1}{3}$ cups of grated cheese. What is the total amount of grated cheese needed for both recipes?

6.) You want to make a scarf and matching hat. The pattern calls for $1\frac{7}{8}$ yards of fabric for the scarf and $2\frac{1}{2}$ yards of fabric for the hat. How much fabric do you need in all?

Pre-Algebra – Summer Math Packet

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Unit: Knowledge of Number Relationships & Computation
Objective: Add, **subtract**, and multiply positive fractions and mixed numbers. - B
Examples:

- **To subtract unlike fractions (fractions with different denominators), rename the fractions so there is a common denominator.**

Subtract: $\frac{7}{8}-\frac{1}{2}=$ $\frac{7}{8}=\frac{7\bullet1}{8\bullet1}=\frac{7}{8}$ $\frac{1}{2}=\frac{1\bullet4}{2\bullet4}=\frac{4}{8}$ $\frac{7}{8}-\frac{4}{8}=\frac{3}{8}$

Subtract: $5\frac{3}{4}-2\frac{1}{3}=$ $5\frac{3}{4}=5\frac{3\bullet3}{4\bullet3}=5\frac{9}{12}$ $2\frac{1}{3}=2\frac{1\bullet4}{3\bullet4}=2\frac{4}{12}$

$5\frac{9}{12}-2\frac{4}{12}=3\frac{5}{12}$

**Note: If you have to borrow from the whole number change to improper fractions, find a common denominator, subtract, and then change back to proper fractions.

1.) Subtract: $\frac{9}{10}-\frac{1}{10}$

2.) Subtract: $\frac{2}{3}-\frac{1}{6}$

3.) Subtract: $9\frac{7}{10}-4\frac{3}{5}$

4.) Subtract: $5\frac{3}{8}-4\frac{11}{12}$

*Hint: Change to improper fractions first!

5.) Melanie had $4\frac{2}{3}$ pounds of chopped walnuts. She used $1\frac{1}{4}$ pounds in a recipe. How many pounds of chopped walnuts did she have left?

6.) Lois has $3\frac{1}{3}$ pounds of butter. She uses $\frac{3}{4}$ pound in a recipe. How much does she have left? *Hint: Change to improper fractions first.

Pre-Algebra – Summer Math Packet

On a scale of 1 – 5 (1: Weak, 5: Strong) rate yourself on this section of math: 1 2 3 4 5

Unit: Knowledge of Number Relationships & Computation
Objective: Add, subtract, and **multiply** positive fractions and mixed numbers. - **C**
Examples:

- **To multiply fractions – Multiply the numerators & denominators.**
- **Be sure to change mixed numbers to improper fractions before multiplying.**

$$\frac{1}{3}\bullet\frac{5}{8}=\frac{5}{24}$$

$$1\frac{1}{3}\bullet 3\frac{2}{5}=\frac{4}{3}\bullet\frac{17}{5}=\frac{68}{15}=4\frac{8}{15}$$

**Remember: Changing mixed numbers to improper fractions. $2\frac{3}{4}=4\bullet 2+3=\frac{11}{4}$

$$1\frac{1}{3}\bullet 21 \quad = \quad \frac{4}{3}\bullet\frac{21}{1} \quad = \quad \frac{4\bullet 21}{3\bullet 1}=\frac{84}{3}=28$$

1.) $\frac{2}{3}\bullet\frac{4}{5}=$

2.) $\frac{7}{3}\bullet 4\frac{1}{2}=$

3.) $2\frac{1}{2}\bullet 2\frac{1}{3}=$

4.) $3\bullet 5\frac{2}{9}=$

5.) Anna wants to make 4 sets of curtains. Each set requires $5\frac{1}{8}$ yards of fabric. How much fabric does she need?

6.) One sixth of the students at a local college are seniors. The number of freshmen students is $2\frac{1}{2}$ times that amount. What fraction of the students are freshmen?