Summer Enrichment

for Students Entering Sixth Grade

Dear Crusader Families and Friends,

We are providing these summer enrichment activities for children entering grades kindergarten through eighth grade. Working with your child throughout the summer will lessen the likelihood of the “summer slide,” which is a phrase used to describe the slide backwards that many children experience in reading and math skills over the summer. You can combat the “summer slide” by encouraging your child to devote a small bit of time each day to keeping up skills.

Countless studies show that reading is one of the single most important things a child of any age can do. Reading strengthens vocabulary, exercises the brain, improves concentration, improves language skills, develops imagination, and helps children to develop empathy.

We hope you find these activities helpful! Take time to preview the activities together. We encourage you to have your child create a summer journal.

Thank you for partnering with us in your child’s education!

Sincerely Yours in Christ,

Betsy Davenport

Principal

Holy Cross Catholic School

Where to Go to Get Help … or Practice!

During the course of your math work this summer, you may need some assistance with deepening your understanding of the skills and concepts. You also might want to get some more practice. Here are some sites you can visit online:

LearnZillion has video lessons on every Math standard. Go to www.LearnZillion.com and search for any math topic or standard.	LearnZillion
Khan Academy has helpful videos and self-guided practice problems for every grade level. Go to www.khanacademy.org to get started.	

Math 6

Number & Operations in Base Ten: Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Our place value system is structured like this:

Thousands	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
7	3	5	4	.	6	8	8

The system is set up in "base ten." So, each place is ten times as large as the place to its right.

For example, in the number **330**, there are 3 hundreds and 3 tens. So, the 3 in the hundreds place has 10 times the value of the 3 in the tens place, because 30 x 10 = 300.

Can you advance through the three levels of the Base Ten Bonanza? Good Luck!

LEVEL 1

Compare the values of the digits in the number below.

Then choose **True** or **False** for each statement.

2.22

a.) 0.02 is 10 times 0.2. True False

b.) 2 is 10 times 0.02. True False

c.) 0.2 is 10 times 0.02. True False

d.) 0.2 is $\frac{1}{10}$ of 2. True False

e.) 0.02 is $\frac{1}{10}$ of 0.2. True False

f.) 2 is $\frac{1}{10}$ of 0.2. True False

LEVEL 2

Fill in the number that correctly completes each statement.

a.) 500 is 10 times larger than _________.

b.) 500 is 10 times smaller than _________.

c.) 62 is $\frac{1}{10}$ of _________.

d.) 62 is 10 times larger than _________.

e.) 8.9 is $\frac{1}{10}$ of _________.

f.) 8.9 is 10 times larger than _________.

g.) 7.1 is 10 times larger than _________.

h.) 7.1 is 10 times smaller than _________.

LEVEL 3

For each number in the table, write a phrase from the box to make the correct comparisons.

Number	Phrase
7	
0.7	
700	
0.07	
70	

- Is $\frac{1}{10}$ of 700
- Is $\frac{1}{10}$ of 7
- Is $\frac{1}{10}$ of 0.7
- Is 10 times as much as 70
- Is 10 times as much as 0.7

BONUS LEVEL:

Explain the relationship (how many times greater or less one number is than the other) between the two 5's in the number 455,721.

Summer Student Enrichment Packet

Math 6

Number & Operations in Base Ten: Read, write, and compare decimals to thousandths.

Did you know that you can take a number and *E-X-P-A-N-D* it? Well, you can!
For example, let's say you want to take the number **743.86** and *E-X-P-A-N-D* it.

You can do so by breaking down the number using the base 10. Like this:

743.86 is composed of:

whole number parts: 700 + 40 + 3

and

decimal parts: 0.8 + 0.06

In table form using decimals, it looks like this:

700	→	7 x 100
40	→	4 x 10
3	→	3 x 1
0.8	→	8 x 0.1
0.06	→	6 x 0.01
743.86		

Using fractions, the expanded form of the number is:

$$7 \times 100 + 4 \times 10 + 3 \times 1 + 8 \times \frac{1}{10} + 6 \times \frac{1}{100}$$

<u>Using fractions</u> like the example above, write the following numbers in expanded form:

1) 6.741	
2) 98.48	
3) 473.9	
4) 9.1042	
5) 76.07	
6) 20.001	

Choose the correct expanded form of the number given:

7) 80.03

a. $8 \times 10 + 3 \times \frac{1}{10}$

b. $8 \times \frac{1}{10} + 3 \times \frac{1}{100}$

c. $8 \times 10 + 0 \times 1 + 0 \times \frac{1}{10} + 3 \times \frac{1}{100}$

d. $8 \times 1 + 3 \times \frac{1}{100}$

8) 2.728

a. $2 \times 1 + 7 \times \frac{1}{10} + 2 \times \frac{1}{100} + 8 \times \frac{1}{1000}$

b. $2 \times \frac{1}{10} + 7 \times \frac{1}{10} + 2 \times \frac{1}{100} + 8 \times \frac{1}{1000}$

c. $2 \times 1 + 7 \times \frac{1}{10} + 8 \times \frac{1}{1000}$

d. $2 \times 1 + 7 \times \frac{1}{10} + 2 \times \frac{1}{1000} + 8 \times \frac{1}{10000}$

9) Which of the following expressions show the values of the digits in four hundred fifty-three and forty-eight hundredths? Circle all that apply.

A. $4 \times \frac{1}{100}$

B. $8 \times \frac{1}{100}$

C. 50×10

D. 8×100

E. 4×100

F. 5×10

G. 3×10

H. 3×1

I. $4 \times \frac{1}{10}$

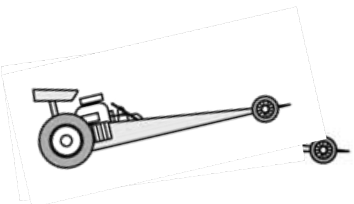
When comparing decimals, use a place-value chart to line up the decimal places and ensure that each decimal is given the same number of places.

For example: Race Car Driver 1 completed a lap in 28.9 seconds and Race Car Driver 2 completed a lap in 28.889 seconds. Which driver took less time to complete a lap?

	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
Driver 1	2	8	.	9	0	0
Driver 2	2	8	.	8	8	9

Add zeros after the 9 to have the same decimal places as Driver 2

In comparing the numbers, Driver 2 completed the lap in slightly less time than Driver 1 – just 0.011 seconds!



Drag racers are super-fast race cars! The winning times of drag races are usually under 10 seconds and the difference between the finishing times of cars is frequently very small!

It's your job to use the <, >, or = symbol to compare each pair of times. The lesser time wins the race! *Add placeholder zeros to help you compare!*

Example:

4.2 ____ 4.203

4.200 ____ 4.203

4.200 is less than 4.203, so 4.200 __<__ 4.203

1) 8.01 ___ 8.1

2) 2.025 ___ 2.205

3) 10.12 ___ 10.012

4) 9.75 ___ 9.755

5) 8.091 ___ 8.291

6) 6.2 ___ 6.200

7) 9.9 ___ 9.899

8) 8.99 ___ 8.991

9) Compare each number to **635.49**. *Add placeholder zeros to help you compare!*
Then, write each number in the correct column.

636.0	635.4955	635.409
635.4	635.04	635.490

Less Than 635.49	Equal to 635.49	Greater Than 635.49

10) Use the digits from the box for each decimal to make the number sentence true. The digits may be used more than once. Each of your answers should be different.

A. 71.531 > 71.5 __ __

B. 71.531 > 71.5 __

1	3	7	9

C. 71.531 < 71.5 __ __

D. 71.531 < 71.5 __

11) At a gas station, you see the prices 2.449 and 2.429 listed for different types of gasoline. Which price is greater? Explain your choice.

12) In a 50-meter sprint, Patrick had a time of 5.75 seconds. Carl ran the same distance in 5.9 seconds. Who had the better time in the race? Explain your choice.

Summer Student Enrichment Packet

Math 6

Number & Operations in Base Ten: Use place value understanding to round decimals to any place.

Do you remember your rounding rules? Here is one song that teaches the rounding rules:

Find your place (Circle the place of the number you're rounding)
Look RIGHT next door
Five or greater, add one more
Four or less, stays the same
Numbers behind, zero's your name.

When you round a number, you are finding a number that is close to the given number.

Example:
Round **8.526** to the nearest:

- **Whole number** (Look RIGHT next door: The *5* in the tenths place tells you to round the *8* in the ones place up to a *9*) *Answer* → ***9***
- **Nearest tenth** (Look RIGHT next door: The *2* in the hundredths place tells you to keep the *5* in the tenths place) *Answer* → ***8.5***
- **Nearest hundredth** (Look RIGHT next door: The *6* in the thousandths place tells you to round the *2* in the hundredths place up to a *3*) Answer → ***8.53***

1) **1.8453**

Round the above number to the:

Nearest whole number ______________ Nearest tenth ______________

Nearest hundredth ______________ Nearest thousandth ______________

2) **13.2607**

Round the above number to the:

Nearest whole number ______________ Nearest tenth ______________

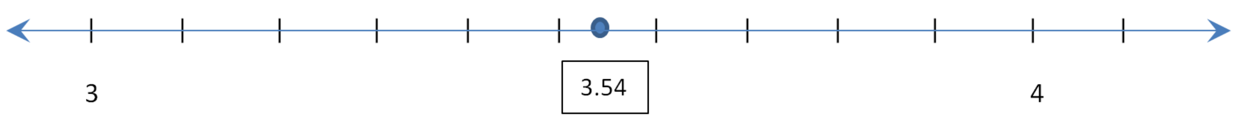
Nearest hundredth ______________ Nearest thousandth ______________

What Could My Number Be?

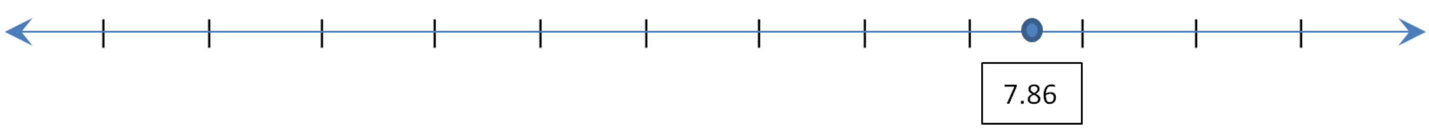
Math 6

3) My number rounded to the nearest tenth is 8.1. What could my number be?	4) My number rounded to the nearest hundredth is 16.63. What could my number be?
5) My number rounded to the nearest tenth is 0.8. What could my number be?	6) My number rounded to the nearest thousandth is 5.738. What could my number be?

7) Use the number line below to round 3.54 to the nearest tenth. _____________



8) Use the number line below to round 7.86 to the nearest tenth. _____________



Culminating Question

9) Choose *non-zero* numbers to fill in each blank: ___ . ___ ___ ___

Now round your number to the:

Nearest whole number __________ Nearest tenth ____________

Nearest hundredth ____________ Nearest thousandth ______________

Math 6

Number & Operations in Base Ten: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Directions: Perform the operation indicated. Show your process. Use estimation to check the reasonableness of your answer. NO CALCULATOR should be used.

The answer for each problem corresponds to a letter. Each letter should be placed in a blank that corresponds to a problem number to answer this riddle:

What blew the flags at the beach?

1) 64.32 + 18.94
2) 48.3 + 37.91
3) 25 + 60.62
4) 79.6 – 45.9
5) 23 – 7.55
6) 51.68 – 30.29
7) 72.6 – 28.49
8) 8.3 x 4.9
9) 6.08 x 3.45
10) 0.5 x 17.64
11) 58.8 x 19.3
12) 87 x 0.28

20.976 → U	40.67 → O	15.45 → G	24.36 → N
85.62 → S	1134.84 → T	33.7 → D	21.39 → A
44.11 → I	83.26 → F	8.82 → U	86.21 → W

___	___	___	___	___	___		___	___		___	___	___	___
6	10	5	9	3	11		8	1		2	7	12	4

Math 6

Number & Operations – Fractions: Use equivalent fractions as a strategy to add and subtract fractions.

Perform the indicated operation(s).

1) $\frac{1}{3} + \frac{1}{4} + \frac{1}{6}$	2) $\frac{1}{3} + \frac{5}{6} + \frac{1}{12}$	3) $3\frac{5}{9} + 2\frac{1}{6}$
4) $4\frac{3}{10} + 6\frac{1}{3}$	5) $10\frac{1}{2} - 8\frac{2}{9}$	6) $3\frac{8}{9} - 2\frac{5}{12}$
7) $\frac{1}{2} + \frac{1}{3} - \frac{1}{4}$	8) $\frac{1}{8} + \frac{3}{4} - \frac{2}{3}$	

Math 6

9) Krissy swam $\frac{2}{3}$ of a mile on Monday and $\frac{3}{4}$ of a mile on Wednesday.

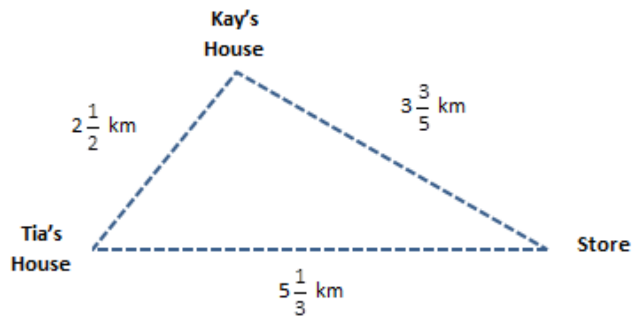
- How many miles did she swim over the two days?
- If she wants to swim a total of 3 miles before Friday, how much farther does she need to swim?

10) Carla is training for a marathon. On Wednesday, she ran $5\frac{3}{8}$ miles for her workout. On Thursday, she ran $9\frac{4}{5}$ miles. How much farther did she run on Thursday than Wednesday?

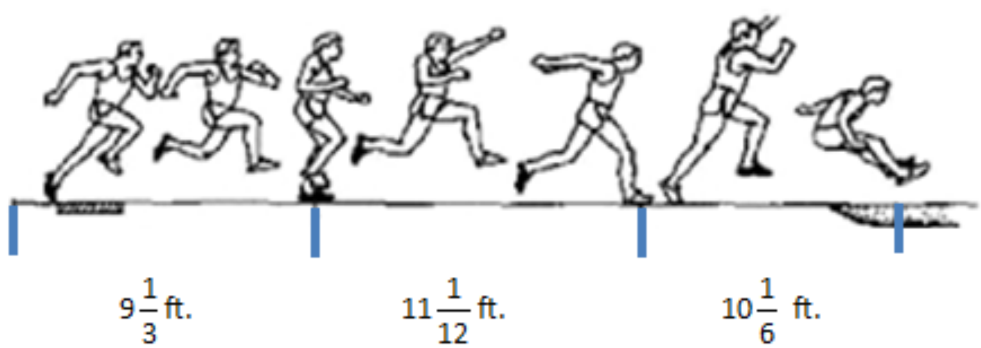
Go Carla!

Math 6

11) From her house, Tia biked to the store and then to her friend Kay's house before returning home, as shown in the diagram to the right. How many total kilometers did Tia bike?



12) In practice, Carson made a triple jump with the segments shown below. What is the combined length of his jumps? Explain how you determined your answer.



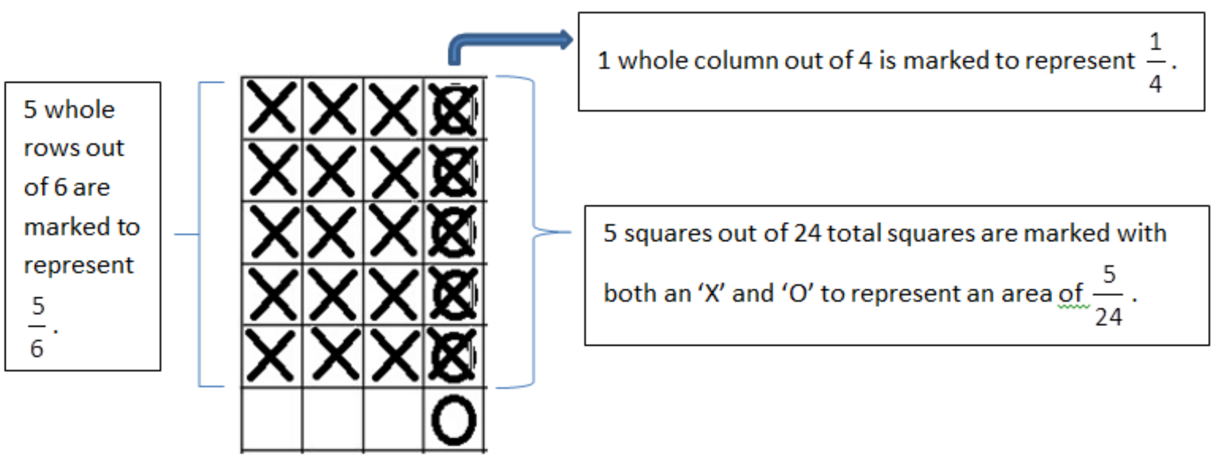
Math 6

Number & Operations – Fractions: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
Number & Operations – Fractions: Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

One way to visualize multiplying two fractions is to draw a rectangle model that is made of side lengths that are equal to each of the fractions.

Example: What is the area of a rectangle with side measurements of $\frac{1}{4}$ and $\frac{5}{6}$?

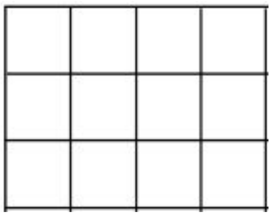
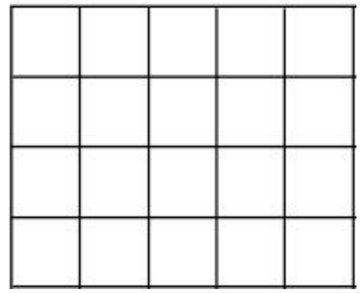
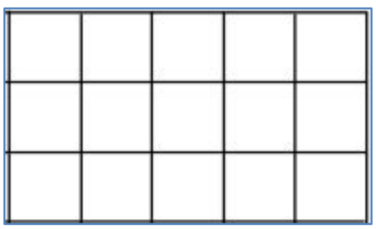
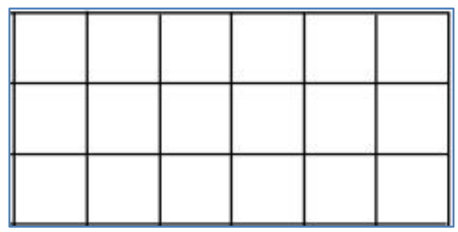
You should know that to find area of a rectangle, multiply the length times the width. To model this, you can create a rectangular grid on which you can represent each side length. Then you can shade the area of the rectangle to represent the expression and confirm your answer by multiplying the fractions.



So to find the area of a rectangle with side lengths of $\frac{1}{4}$ and $\frac{5}{6}$, multiply numerators straight across and denominators straight across: $\frac{1}{4} \times \frac{5}{6} = \frac{5}{24}$.

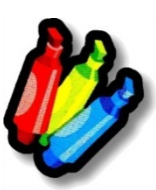
Summer Student Enrichment Packet

Math 6

1) Shade the figure and determine the area of a rectangle with side lengths of $\frac{3}{4}$ and $\frac{2}{3}$. 	2) Shade the figure and determine the area of a rectangle with side lengths of $\frac{2}{4}$ and $\frac{2}{5}$. 
3) Shade the figure and determine the area of a rectangle with side lengths of $\frac{1}{3}$ and $\frac{4}{5}$. 	4) Shade the figure and determine the area of a rectangle with side lengths of $\frac{1}{6}$ and $\frac{2}{3}$. 

5) In the space below, draw a grid and model the expression $\frac{2}{3} \times \frac{1}{2}$, then check using math.

6) Aretha's trip to an art supply store took $1\frac{1}{6}$ hours. Her return trip took only $\frac{5}{7}$ of the time of her trip to the store. How long was Aretha's return trip? What was Aretha's total driving time?



7) Marcus has 36 markers in his case. Of those, $\frac{4}{9}$ are fabric markers.

How many of his markers are <u>not</u> fabric markers? <u>Explain how you determined your answer</u>.

Math 6

1) You use $\frac{7}{8}$ of a gallon of paint for one room. How much paint do you need to paint four rooms?

2) One paving stone weighs 21 $\frac{5}{12}$ pounds. You want to put six paving stones in front of your house. How many total pounds of stones do you have to buy?

3) A landscaper charges $16 per hour for his services. How much money do you have to pay him if he works 7 $\frac{3}{4}$ hours fixing up your yard?

4) You bought a 70-pound bag of grass seed and used $\frac{2}{5}$ of it to seed your lawn. How many pounds of grass seed did you use?

5) You decided to paint the walls of your room. You painted half of one wall red. Then you changed your mind and wanted to paint over it in green. You waited for it to dry and then started covering the

red with green paint. At the end of the day, $\frac{2}{3}$ of the original red wall was painted green. At that time, how much of the entire wall had been painted green? <u>Explain how you determined your answer</u>. (*Hint:* Draw a picture to help you understand the problem and the solution.)

Culminating Question

6) Write a short real-life scenario that models the equation below and draw a visual representation to show the solution.

$4 \times \frac{3}{4} =$

Math 6

MATH 6 UNIT 1 PREVIEW – Number System: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Finding the Least Common Multiple

Strategy: To find the Least Common Multiple (LCM) of two numbers, simply find the multiples of each of the numbers. Then determine the lowest multiple that is shared by both numbers.

For example: Find the LCM of 4 and 9.

Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, ***36***
Multiples of 9: 9, 18, 27, ***36***

The LCM of 4 and 9 is 36.

You can find the LCM of three numbers using the same method.

Try these:

1) What is the LCM of 6 and 9?

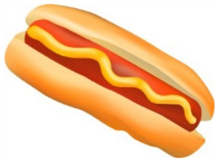
2) What is the LCM of 6 and 10?

3) What is the LCM of 8 and 12?

4) What is the LCM of 5 and 8?

5) What is the LCM of 4, 6, and 9?

6) What is the LCM of 4, 5, and 6?



7) Hot dogs come in packages of 10 and hot dog buns come in packages of 8. What is the least amount of each product that you need to buy if you want exactly one hot dog for each hot dog bun?

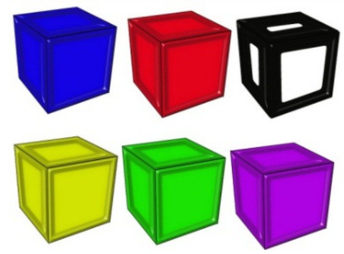
8) A pro baseball team is having a promotion in which every 10th fan that enters the stadium gets a free hat and every 12th person gets a free T-shirt. How many fans will come into the stadium before a fan receives both a hat and a T-shirt?

9) Brandon is thinking of a number that is divisible by 6 and 8. What is the smallest number that Brandon could be thinking of?

10) The school band is playing a piece of music in which the bass drum is struck every four beats and the chimes are struck every 22 beats. What is the number of the first beat in which the bass drum and chimes will be struck on the same beat?

Greatest Common Factor – Example 1

Brenda has 54 marbles and 72 cubes to put into bags. She wants each bag to have the same number of each item with nothing left over. What is the greatest number of bags Brenda could make? How many of each item would there be in each bag?



To determine the GREATEST number of bags Brenda could make, you could find the ***greatest common factor*** of the number of marbles (54) and cubes (72). This can be done by listing the possibilities in a table.

Number of Bags	1	2	3	6	9	**18**	27	54
Marbles in each bag	54	27	18	9	6	3	2	1

# of Bags	1	2	3	4	6	8	9	12	**18**	24	36	72
Cubes in each bag	72	36	24	18	12	9	8	6	4	3	2	1

- The greatest number of bags that is found in ***both*** tables is 18, so 18 is the greatest number of bags Brenda could make. Therefore, 18 is the ***greatest common factor*** for 54 and 72.
- In each bag, there would be 3 marbles and 4 cubes.

Example 2

Find the greatest common factor of 12 and 30.

Strategy: List the factors of each number.
Identify the greatest factor that both numbers have.

12: 1, 2, 3, 4, ***6***, 12
30: 1, 2, 3, 5, ***6***, 10, 15, 30

So, the greatest common factor of 12 and 30 is 6.

Math 6

1) Barbara is having a party and wants to pre-make plates of snacks for her guests. She has 90 pretzels and 63 cookies. What is the greatest number of plates she can make with the same amount of pretzels and cookies on each plate and no snacks left over? How many of each item would there be?

2) A farmer is putting apples and oranges into boxes to sell at a market. He has 64 apples and 24 oranges. What is the greatest number of boxes he can make using all of the apples and oranges if each box has identical contents?

3) Melody is making cups of fruit salad. She has 25 grapes, 15 strawberries, and 50 blueberries. How many cups of fruit salad can Melody make if each cup has to have the same amount of each type of fruit and there is nothing left over?

4) Toni is making party bags for her daughter's birthday party. Toni bought 36 party favors, 27 cookies, and 18 lollipops. How many party bags can Toni make if she wants to use all of the materials that she bought and every bag contains the same items?

The ***greatest common factor*** can be used to re-write an expression**.**

For example:

Re-write the expression 44 + 28 as a product using the greatest common factor as a factor multiplying a quantity in parentheses.

- Think: what is the greatest common factor of 44 and 28?
    - Factors of 44: 1, 2, ***4***, 11, 22, 44
    - Factors of 28: 1, 2, ***4***, 7, 14, 28

    → The greatest common factor of the two numbers is 4.
- Divide both numbers by the GCF.
    - 44 ÷ 4 = 11   and   28 ÷ 4 = 7
- Use the GCF as a factor multiplying a quantity in parentheses:
    - 4(11 + 7)

Check:

- 44 + 28 = 72
- Apply the Distributive Property to check:
  4(11 + 7) → 4(18) = 72

Distributive Property

Write the following sums as products using the greatest common factor as a factor multiplying a quantity in parentheses, as in the example above.

5) 14 + 18 ______________________   6) 6 + 42 ______________________

7) 39 + 18 ______________________   8) 24 + 40 ______________________

9) 27 + 15 ______________________   10) 35 + 49 _____________________

11) 60 + 48 ______________________   12) 66 + 88 ______________________