Unit 1

Number System Fluency

Greatest Common Factor (GCF)
Least Common Multiple (LCM)
Long Division
Operations with Decimals
Dividing Fractions

Name:_____

Math Teacher: _____

Math 6/7

Unit 1 Calendar

7/29	7/30	7/31	8/1	8/2
			Rules and Procedures; Getting to Know You!	Unit 1 Pre-test; Group Work Task
8/5	**8/6**	**8/7**	**8/8**	**8/9**
MSG Set-up; GCF & LCM	Problem Solving with GCF & LCM	Problem Solving with GCF & LCM	Long Division	Problem Solving with Long Division; Short Quiz
IXL due 8/12: C1, E4, E7, E9, E11, E12				
8/12	**8/13**	**8/14**	**8/15**	**8/16**
Operations with Decimals	Operations with Decimals	Spend It! Challenge; Operations with Decimals	Problem Solving with GCF/LCM, Long Division, & Decimals	Review Activity, Quiz
IXL due 8/19: O4, O5				
8/19	**8/20**	**8/21**	**8/22**	**8/23**
Dividing Fractions with Models & Algorithms	Dividing Fractions	Dividing Fractions	Unit 1 Review	Unit 1 Test
IXL due 8/26: L1, L2, L5, L7				

This calendar is a guide and is subject to change. Check the blog for up-to-date info!

Unit 1: Number System Fluency

Standards, Checklist and Concept Map

Georgia Standards of Excellence (GSE):

MGSE6.NS.2: Fluently divide multi-digit numbers using the standard algorithm.

MGSE6.NS.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

MGSE6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) = 8/9 because ¾ of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share ½ lb of chocolate equally? How many ¾-cup servings are in 2/3 cup of yogurt? How wide is a rectangular strip of land with length ¾ mi and area ½ square mi?*

MGSE6.NS.4 : 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 the 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. *For example, express 36 + 8 as 4(9 + 2).*

What Will I Need to Learn??

_____ I can divide numbers using the standard algorithm

_____ I can interpret & solve division word problems

_____ I can add and subtract decimals

_____ I can multiply decimals

_____ I can divide decimals

_____ I can divide fractions using an algorithm

_____ I can use pictures to represent division of fractions

_____ I can find the GCF of 2 numbers ≤ 100

_____ I can find the LCM of 2 numbers ≤ 12

_____ I can solve real-world problems involving the number system

Unit 1 IXL Tracking Log

	Skill	Your Score
Due on 8/12	**C.1** (Divisibility Rules)	
	E.4 (Identify Factors)	
	E.7 (Greatest Common Factor - GCF)	
	E.9 (Least Common Multiple - LCM)	
	E.11 (GCF & LCM Word Problems)	
	E.12 (Sort Factors of Numerical Expressions)	
Due on 8/19	**O.4** (Add, Subtract, Multiply or Divide Two Decimals)	
	O.5 (Add, Subt, Mult, Div Two Decimals – Wd Probs)	
Due on 8/26	**L.1** (Divide whole #s by unit fractions using models)	
	L.2 (Reciprocals)	
	L.5 (Divide Fractions)	
	L.7 (Divide Fractions and Mixed Numbers)	

Unit 1 - Vocabulary

Term	Definition
Algorithm	A step-by-step method used to solve a problem
Difference	The result when two numbers are subtracted
Dividend	The number being divided
Divisibility	A number has divisibility when it can be divided evenly without a remainder
Divisor	A number that divides into the dividend
Factor	A whole number that divides exactly into another number
Greatest Common Factor (GCF)	The biggest number that will divide two or more numbers exactly
Least Common Multiple (LCM)	The smallest number that is the multiple of two or more numbers
Multiple	The product of a number and any whole number
Prime number	A number that has exactly two factors, one and itself
Product	The result when two quantities are multiplied
Quotient	The number that results from dividing one number by another
Reciprocal	One of two numbers whose product is 1; the result of "flipping" a fraction
Simplify	To reduce the numerator and denominator of a fraction to the smallest numbers possible
Remainder	The part "left over" in division.
Sum	The result of adding

Unit 1 – Vocabulary – <u>You Try</u>

Term	Definition, Illustration, or Example
Algorithm	
Difference	
Dividend	
Divisibility	
Divisor	
Factor	
Greatest Common Factor (GCF)	
Least Common Multiple (LCM)	
Multiple	
Prime number	
Product	
Quotient	
Reciprocal	
Simplify	
Remainder	
Sum	

Unit 1 Pt. 1 Review: GCF/LCM and Long Division

Complete the following problems to review this unit.
You must show all work to receive credit!

1) Find the greatest common factor of 30 and 48.

2) Find the least common multiple of 10 and 6.

3) Which choice lists all the factors of 48?

a. 1, 2, 4, 12, 24, 48
b. 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
c. 0, 1, 2, 4, 6, 8, 12, 16, 48
d. 1, 2, 3, 4, 6, 10, 12, 15, 18, 24, 48

4) Is it possible to have a Greatest Common Multiple? Yes No
Explain your reasoning._____

_____

5) Is it possible to have a Least Common Factor? Yes No
Explain your reasoning._____

_____

For #s 6 & 7, find the quotient, and write your remainders as a fraction AND a decimal.

6) $2\overline{)537}$

Fraction:

_____

Decimal:

_____

7) $15\overline{)6{,}138}$

Fraction:

_____

Decimal:

_____

8) Talia has 28 pencils and 42 erasers. She is splitting them into bags for new students. Each bag will have an equal number of pencils and erasers. What is the maximum number of bags she can make? How many pencils and erasers will be in each bag?

bags she can make:_____

pencils per bag:_____

erasers per bag: _____

9) Hot dogs come in packs of 8 and hot dog buns come in packs of 10. What is the least number of packs of each that can be bought to make hot dogs (one hot dog and one bun) with no hot dogs or buns left over?

total number of hot dogs:_____

packs of hot dogs:_____

packs of buns: _____

10) A shipment of 478 textbooks came to a school. The books are being given out in class sets of 25. How many classrooms will receive a full class set of textbooks?

11) There are 1,460 people waiting to ride a roller coaster. Each cart takes 30 people. How many carts will it take for everyone in line to have a turn?

Unit 1 Pt. 2 Review: Decimals and Fraction Division

Complete the following problems to review this unit.
You must show all work to receive credit!

1) $\frac{3}{5} \div \frac{1}{5} =$

2) 13.12 + 6 + 7.1 =

3) (1.25)(2.3) =

4) $\frac{5}{10} \div 10 =$

5) 72 – 1.68 =

6) $5\frac{1}{2} \div 2\frac{1}{2} =$

7) A quarterback practiced for $28\frac{1}{2}$ hours in 4 weeks. How many hours did he practice per week?

8) Sarah paid $4.80 for 1.2 pounds of sunflower seeds. What is the cost for one pound of sunflower seeds?

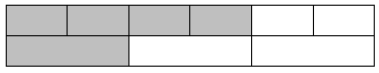
9) A group of friends has ordered 3 pizzas to share. If each person ate 1/4 of a pizza, and there is no pizza left over, how many friends split the pizza?

10) Emma has $3 to buy school supplies. She buys 3 folders that are $0.55 each. She wants to spend the remaining money on pencils that are $0.05 each. How many pencils can she purchase?

11) Ian bought a milkshake for $3.58 and a burger for $5.17. If he paid with a $10 bill, how much change did he receive?

12) Cameron is cutting a roll of cookie dough into pieces that are $\frac{1}{3}$ inch thick. If the roll of cookie dough is $\frac{4}{6}$ inches long, which model best represents the situation? Write and solve the division problem next to the model.

a.



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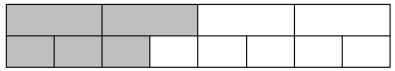

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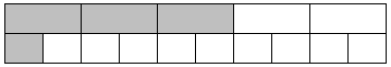


Divisibility Rules

Divisibility rules help you determine if a number can be evenly divided into another number.

Divisible by?	The trick!
2	last digit 0, 2, 4, 6, 8?
3	sum of digits ÷ 3?
4	last 2 digits ÷ 4?
5	last digit 0 or 5?
6	✓2 rule **and** ✓3 rule?
8	last 3 digits ÷ 8?
9	sum of digits ÷ 9?
10	last digit 0?

Divisibility Rules Practice

For each number below, test the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 ***and circle which numbers they are divisible by.*** *Some numbers are divisible by several numbers but some may not be divisible by any. Use your notes!*

1) 42: 2 3 4 5 6 9 10

2) 64: 2 3 4 5 6 9 10

3) 540: 2 3 4 5 6 9 10

4) 100: 2 3 4 5 6 9 10

5) 139: 2 3 4 5 6 9 10

6) 612: 2 3 4 5 6 9 10

7) 30: 2 3 4 5 6 9 10

8) 124: 2 3 4 5 6 9 10

9) 126: 2 3 4 5 6 9 10

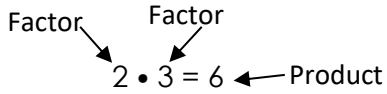
10) 4428: 2 3 4 5 6 9 10

11) 513: 2 3 4 5 6 9 10

12) 330: 2 3 4 5 6 9 10

Factors and Products

Factors are whole numbers that multiply together to make a **product**.

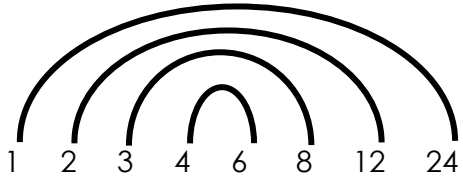


Products are answers you get when you multiply **factors**.

Example:

Find the factors of 24.

Use a factor rainbow.



Use a factor table.

24	
1	24
2	12
3	8
4	6

The factors of 24 are: 1, 2, 3, 4, 6, 8, 12 and 24

You Try:

Find all of the factors of the following numbers.

1) 18 **2)** 60 **3)** 45

4) 120 **5)** 19 **6)** 39

Multiples

Multiples are the product of a number and any whole number.

Example: Find the first 10 multiples of the number 2.

2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

You Try:

Find the first 6 multiples of the following numbers.

1) 7 **2)** 8 **3)** 5

4) 12 **5)** 20 **6)** 31

Extra Practice with Factors and Multiples

Find all of the factors of each number and the first 6 multiples.

1) 11

Factors: _____

Multiples: _____

2) 48

Factors: _____

Multiples: _____

GCF (Greatest Common Factor)

Definition: _____

_____

_____

Method #1: _____

Algorithm:

Method #2: _____

Algorithm:

GCF Examples

List Example:

Find the GCF by making a list of all factors.

24: 1, 2, 3, 4, 6, 8, 12, 24

30: 1, 2, 3, 5, 6, 10, 15, 30

The largest factor that 24 and 30 share in common, is 6, so 6 is the GCF.

Sled Example:

Find the GCF by using the SLED method.

First, set up a sled with the numbers on it. Divide by the common factors that the numbers share. Keep dividing until the only common factor that remains is 1.

2	24	30
3	12	15
	4	5

The GCF is the product of the factors on the **left**, so the GCF is 2 x 3 which is 6. ***"GCF is on the LEFT!"***

You Try:

Find the GCF for the following sets of numbers.

1) 16 and 72 **2)** 90 and 75 **3)** 54 and 18

LCM (Least Common Multiple)

Definition: _____

_____

_____

Method #1: _____

Algorithm:

Method #2: _____

Algorithm:

LCM Examples

List Example:

Find the LCM by making a list of the multiples.

10: 10, 20, 30, 40, 50, 60, 70, 80

12: 12, 24, 36, 48, 60

The smallest multiple that 10 and 24 share in common is 60, so 60 is the LCM.

Sled Example:

Find the LCM by using the SLED method.

2	10	12
	5	6

The LCM is the product of all of the factors, so the LCM is 2 x 5 x 6 which is 60. ***"LCM is all of them!"*** Notice that the factors form the letter "L" for LCM.

You Try:

Find the LCM for the following sets of numbers.

1) 8 and 6 **2)** 12 and 20 **3)** 25 and 100

GCF and LCM

_____ is on the _____
AND
_____ is all of _____

Find the GCF and LCM for each set of numbers. Show work.

1) 15 and 40
GCF: _____ LCM: _____

2) 24 and 96
GCF: _____ LCM: _____

3) 12 and 54
GCF: _____ LCM: _____

4) 24 and 64
GCF: _____ LCM: _____

5) 7 and 10
GCF: _____ LCM: _____

6) 14 and 49
GCF: _____ LCM: _____

GCF and LCM in Problem Solving

TIP #1 – Look for KEY words that will tell you if you're finding GCF or LCM!

WORDS GCF	WORDS LCM

TIP #2 – Draw a picture! Sometimes visualizing a problem helps it make sense!

Example 1: Johnny is making goodie bags that include a lollipop and bubbles. If the lollipops come 4 to a pack, and the bubbles come 6 to a pack, what is the smallest number of bags that he can make and not have anything left over? How many packs of lollipops and bubbles should he buy?

Draw 4 lollipops and 6 bubbles until there are no items "left over", until all of the lollipops have a matching bottle of bubbles.

Example 2: Shannon is making identical balloon arrangements for a party. She has 24 white balloons and 16 blue balloons. She wants each arrangement to have the same number of each color. What is the greatest number of arrangements that she can make if every balloon is used?

WWWBB WWWBB WWWBB WWWBB
WWWBB WWWBB WWWBB WWWBB

Draw the balloons in the largest possible number of equal groups. She can make 8 arrangements.

You Try! Problem Solving with GCF/LCM

1) There are 40 girls and 32 boys who want to participate in 6th grade intramurals. **If each team must have the same number of girls and the same number of boys, what is the greatest number of teams that can participate in intramurals? How many girls and boys will be on each team?**

# of teams _____

# of girls _____

# of boys _____

2) Fred is making some hot dogs for his company picnic. Buns come 12 to a pack and hot dogs come 8 to a pack. **What is the fewest number of hot dogs he can make and not have any leftover buns or hot dogs? How many packs of buns and packs of hot dogs should he buy?**

# of hot dogs with buns that can be made _____

# of packs of buns _____

# of packs of hot dogs _____

3) Audra has two rolls of streamers to use in decorating the school gym for a pep rally. The red streamers are 64 feet long and the blue streamers are 72 feet long. **What is the maximum length each streamer can be so that they are all of equal length? How many red streamers would she have? How many blue streamers would she have?**

Length of each streamer _____

# of red streamers _____

# of blue streamers _____

4) Enzo and Beatriz are playing games at their local arcade. Incredibly, Enzo wins 5 tickets from every game, and Beatriz wins 11 tickets from every game. When they stopped playing games, Enzo and Beatriz had won the same number of total tickets. **How many tickets did each student win? How many games did Enzo and Beatriz each play?**

# of tickets each student each won _____

games that Enzo played _____

games that Beatriz played _____

5) Tim has 39 pairs of headphones and 13 music players. Tim wants to sell all of the headphones and music players in identical packages. **What is the greatest number of packages Tim can make? How many headphones and music players will be in each package?**

packages Tim can make _____

headphones per package _____

music players per package _____

6) Two pigs entered a race around a track. Piggly takes 6 minutes to run one lap. Wiggly takes 5 minutes to run one lap. **If both pigs begin the race at the same time, what is the shortest amount of minutes it will take for them to be back at the starting line? How many laps will each pig have made at that time?**

Time for both pigs to be at starting point _____

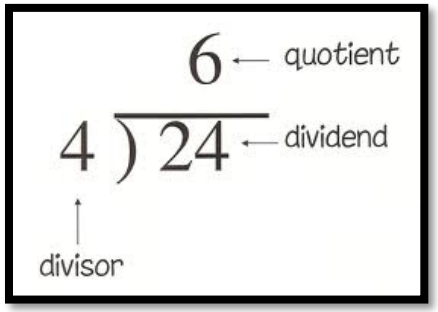
# of laps for Piggly _____

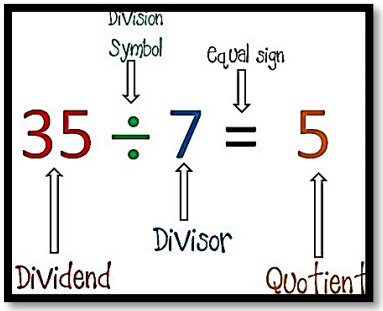
# of laps for Wiggly _____

Long Division

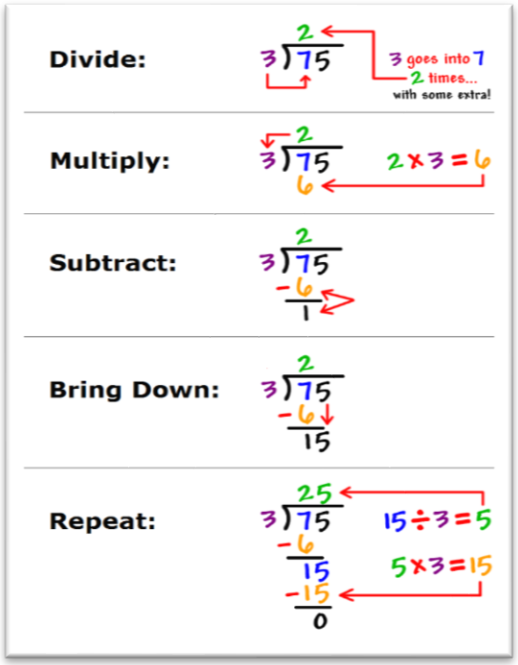
Division determines how many times the ***divisor*** fits *into* the ***dividend***.

Division is the inverse (opposite operation) of multiplication. You can use multiplication to ***"undo" or check*** your answer. Multiply the quotient by the divisor and you should get the dividend.



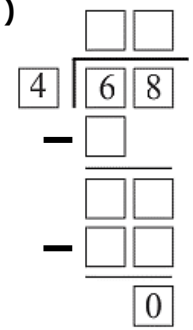


Example:



You Try:

1)



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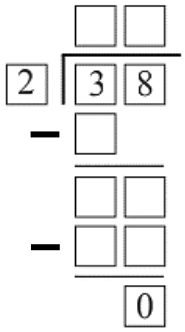

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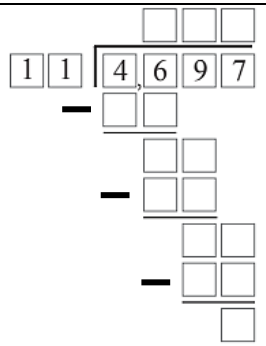
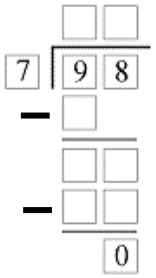


4)



5) $9\overline{)6{,}840}$

6) $4\overline{)4{,}456}$

7) $15\overline{)1575}$

8) $25\overline{)2575}$

Long Division and Remainders

What is a remainder? A _____ exists when your _____ doesn't go into your _____ evenly, meaning that you don't have enough remaining to make another group. It is the "_____ _____" amount after you have divided.

Example:

1) 23 ÷ 4 =

4 goes into 23 five whole times, but there are three more left. Those three won't allow us to make another group of 4, so 3 is the remainder.

How do we write remainders? Up until this point, you have probably been writing remainders as "R 3". Now that you know more about what a remainder is, you will need to write your remainders differently to reflect that a remainder represents a PART of the whole.

We can write a remainder in one of two ways: a FRACTION or a DECIMAL.

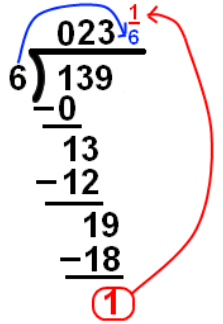
Examples:

Problem	**Instead of writing the quotient as…** 👎	**Quotient as a Fraction** 👍	**Quotient as a Decimal** 👍
13 ÷ 5	2 R 3	$2\frac{3}{5}$	2.6
93 ÷ 2	46 R 1	$46\frac{1}{2}$	46.5

Remainders as Fractions & Decimals

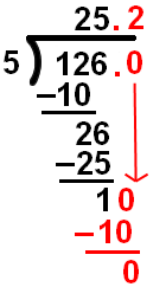
As a fraction…

When you divide, the divisor (6) goes into the dividend (139), 23 whole times, but there is 1 left over that won't make another group of 6. "1" is the remainder. We write it as a fraction with the remainder over the divisor. There is one left when we needed six to make another whole.



As a decimal…

When you want to write your remainder as a decimal, you add a zero and continue to divide until you get a remainder of zero or you round your answer according to your instructions. If there is no decimal, you must add a decimal before you add a zero.



You Try!

Find the quotients and write the remainder as a fraction AND decimal.

1) 154 ÷ 4 =

2) 121 ÷ 8 =

3) 215 ÷ 20 =

4) 222 ÷ 15 =

Making Sense of Division Problems

You know that a divisor won't always go into a dividend evenly; and when that happens, you're left with a _____. That "remaining" amount represents a part of the whole. But what exactly does this mean?

Sometimes, for your solution to make sense, you cannot include the remainder. In these cases, you must round your quotient up or down to the nearest whole number.

Examples:

Mickey is making bows for Minnie. Each bow needs 7 in of ribbon. If he has 15 in of ribbon, how many bows can he make?	Goofy's favorite ride holds 7 kids at a time. If 15 kids are in line, how many times will the ride have to go for everyone in line to have a turn?
a) Divide: $7\overline{)15}$	a) Divide: $7\overline{)15}$
b) Draw a picture:	b) Draw a picture:
c) What does the remainder represent?	c) What does the remainder represent?
d) Will you have to round your final answer up or down? (Will your remainder be included in your final answer?) Explain.	d) Will you have to round your final answer up or down? (Will your remainder be included in your final answer?) Explain.
e) How many bows can Mickey make?	e) How many times does the ride have to go for everyone to have a turn?

Interpreting Remainders

Round UP when the remainder must be included in the solution.

Round DOWN when the solution must include whole pieces, and it does not make sense to include the remainder.

Would you round up or down? Circle UP or DOWN for each scenario.

UP **DOWN** How many buses are needed to transport students?

UP **DOWN** How many times can I listen to my favorite song (start to finish) in 1 hour?

UP **DOWN** How many packs of gum can I buy with $5?

UP **DOWN** How many shelves are needed to hold a class set of workbooks?

Solve each problem. Circle A, B, C, or D to indicate the best way to interpret each remainder. Each choice will be used once.

A Round down to the whole number.	**B** Round up to the next whole number.
C Use a mixed number.	**D** Use a decimal.

1) Ariana charges an hourly rate for babysitting. Last month, she made $81 for 12 hours of babysitting. How much does she make per hour?

   Circle one: **A** **B** **C** **D**

   Solution: _____

2) A group of 427 people are going on a field trip. Each bus can hold 40 people. How many buses are needed to take everyone on the trip?

   Circle one: **A** **B** **C** **D**

   Solution: _____

3) Kevin and his sisters picked 105 pounds of grapes to sell at a local farmer's market. They split the grapes evenly into 30 bags. How many pounds of grapes were in each bag?

   Circle one: **A** **B** **C** **D**

   Solution: _____

4) Mr. Hernandez owns a Game Stop. Each PS2 game takes up a width of 25 mm. If one shelf is 860 mm wide, how many games can Mr. Hernandez fit on the shelf?

   Circle one: **A** **B** **C** **D**

   Solution: _____

Long Division Error Analysis

Sally is a silly little girl who makes mistakes! In Column #1, analyze her work and *circle her mistake*. In Column #2, explain what she did wrong. In Column #3, show how Silly Sally should work out the problem correctly. Show ALL work!

Silly Sally's Work (Circle her mistake):	**What did Silly Sally do wrong?**	**Show Silly Sally how it's done! (Show ALL steps!)**
$12\overline{)384}$ $-24\downarrow$ 144 -144 000		
$10\overline{)8600}$ $-80\downarrow$ 60 -60 00		
$31\overline{)878}$ $-62\downarrow$ 258 -248 10		

Division Problem Solving:

Solve each problem and show all steps. Circle your answer.

1) Ava has a new bookcase for her bedroom with 6 shelves. Each shelf holds 14 books. If Ava has 91 books, how many books will not fit on the bookcase?	**2)** Sandra helped serve meals to 72 families. Each family received the same amount of food. If she served 648 pounds of food, how many pounds of food did each family receive?
3) A teacher bought 7 packages of 18 batteries each to put in her calculators. Each calculator uses 4 batteries. How many calculators can the teacher fill with batteries?	**4)** The football team is raising money for new turf. The cost of the turf field is $48,780. The team has 18 months to raise the money. How much do they need to raise each month?
5) There are 32 students in a math class. Each table in the classroom seats 6 students. How many tables will be needed to seat all of the students?	**6)** Mr. Thomas is delivering bricks to a construction site. His truck holds 387 bricks at a time. If there are a total of 2,800 bricks, how many trips must be made to deliver all the bricks?

Dividing Decimals

Here are the basic steps for dividing decimals:

1) If necessary, make the divisor a _____ _____ by moving the _____ all the way to the right.
2) Move the _____ in the dividend (the number under the "house") the same number of places that you moved it in the divisor. Add _____ if necessary.
3) Bring the _____ straight up. (Remember, in division the decimal is very _____ and it floats.)
4) Finish by simply, _____ as you normally would.

Examples:

1) $5\overline{)2.5}$ **2)** $1.25\overline{)3.875}$

You Try:

1) 2.32 ÷ 8 = **2)** 0.045 ÷ 0.09 = **3)** 16.75 ÷ 2.5 =

4) Aleem has $416.13 that he is going to give to his 3 friends Amanda, Jennifer and Audra. If he is giving each friend the same amount, how much will each person get?

5) How many quarters are in $20?

Adding and Subtracting Decimals

Here are the basic steps for adding and subtracting decimals.

1) Always _____ up the _____!
2) Fill in _____ as placeholders at the end, especially if subtracting.
3) _____ or _____.
4) _____ the _____ down.
5) _____ your work! Check whether your answer is reasonable by estimating.

Example:

1) 2.6 + 3.45 = 2) 2.37 – 1.256 =

You Try:

1) 16.75 + 5.091 = **2)** 312.55 – 16.2 = **3)** 29.1 – 0.68 =

4) Savannah spent $11.50 at the movies, and Quianna spent $12.75. If they paid together, using a $50 bill, how much change did they receive?

Multiplying Decimals

Here are the basic steps for multiplying decimals.

1) _____. (You do NOT need to line up the _____!)

2) Count the number of places behind the _____ in your problem. Your product must have the same number of places behind the _____.

Example:

1) 3.67 x 2.3 =

2) 9 • 0.54 =

You Try:

1) 8.41 x 0.5 =

2) 2.13 (3.5) =

3) 0.7 • 0.8 =

4) Hunter is building a ramp for his Tech Decks. The base will be a piece of wood that is 2.75 feet long and 2 feet wide. What is the area of the base? (Area of a rectangle = length x width.)

Operations with Decimals Practice

Answer bank:	**107.133**	**16.760**	**38.7**	**0.109**	**51.6**
	43.608	**29.927**	**45.168**	**0.35**	**88.56**

1) 92 – 53.3 = _____

2) 60.4 + 28.16 = _____

3) 19 + 88.133 = _____

4) 5.45 ÷ 50 = _____

5) 78.38 – 34.772 = _____

6) 8.256 ÷ 0.16 = _____

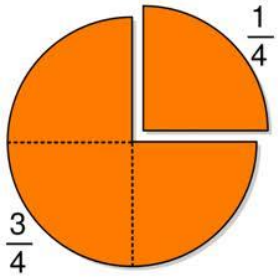
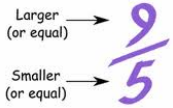
7) 9.41 • 4.8 = _____

8) 20.65 ÷ 59 = _____

9) 96.927 – 67 = _____

10) 2 • 8.38 = _____

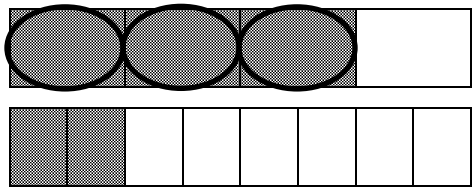
Fractions Cheat Sheet

A fraction is part of a whole.  	The *top* number of a fraction is called the *numerator.* The *bottom* number is the *denominator.*  3 ← Numerator 4 ← Denominator
An *improper fraction* has a numerator that is *larger than or equal to* its denominator.  	A *mixed number* has a whole number AND a fraction. $2\frac{1}{3}$ mixed fraction
You can make any whole number into a fraction by *putting it over 1!* $5 = \frac{5}{1}$	When the numerator and the denominator are the same, the fraction equals 1. $\frac{5}{5} = 1$
If the numerator > the denominator, the fraction's value is greater than 1. $\frac{7}{4} > 1$ If the denominator > the numerator, the fraction's value is less than 1. $\frac{4}{7} < 1$	The fraction bar shows division. The numerator is the dividend (the number ***in*** the "house") and the denominator is the divisor. $\frac{4}{2} = 2\overline{)4}$

Dividing Fractions Using Models

Example:

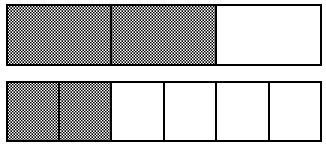
Divide $\frac{3}{4} \div \frac{2}{8} = \frac{3}{4} \div \frac{1}{4}$



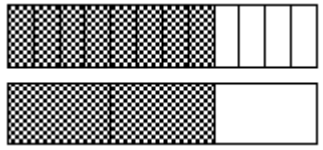
$\frac{3}{4} \div \frac{1}{4} = 3$

You Try:

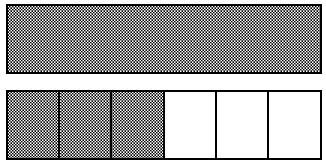
1) $\frac{2}{3} \div \frac{2}{6} =$



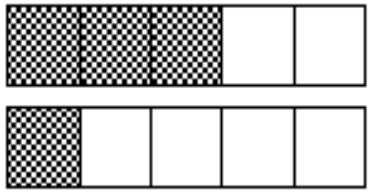
2) $\frac{8}{12} \div \frac{2}{3} =$



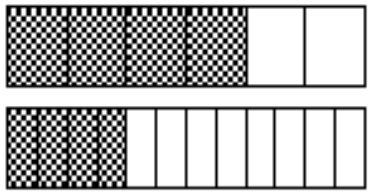
3) $1 \div \_\_\_\_ = \_\_\_\_$



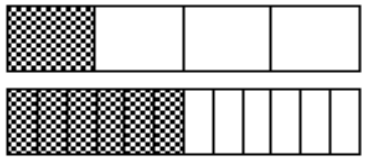
4) $\frac{3}{5} \div \_\_\_\_ = \_\_\_\_$



5) $\_\_\_\_ \div \_\_\_\_ = \_\_\_\_$



6) $\_\_\_\_ \div \_\_\_\_ = \_\_\_\_$



Dividing Fractions W/ Common Denominators

Step 1 Find a common denominator and convert each fraction to have that denominator.

Step 2 Divide straight across.

Step 3 Simplify your new fraction.

Example:

Step 1 $\frac{4}{5} \div \frac{2}{3} = \frac{12}{15} \div \frac{10}{15}$

Step 2 $\frac{12}{15} \div \frac{10}{15} = \frac{12 \div 10}{1}$

Step 3 $\frac{12 \div 10}{1} = 12 \div 10$

$= 1\frac{1}{5}$

You Try:

1) $\frac{5}{7} \div \frac{1}{7} =$

2) $\frac{3}{8} \div \frac{1}{4} =$

3) $\frac{4}{6} \div \frac{1}{3} =$

4) $1\frac{5}{9} \div \frac{7}{18} =$

5) $6 \div 3\frac{1}{3} =$

6) $10\frac{3}{2} \div 6\frac{1}{2} =$

Reciprocals

A _____ is one of two numbers whose product is 1.

It is the result of "flipping" a fraction.

Examples of reciprocals:

1) $\frac{3}{4}$ and $\frac{4}{3}$

2) 2 and $\frac{1}{2}$

3) $4\frac{1}{5} = \frac{21}{5}$ and $\frac{5}{21}$

You Try:

Find the reciprocals:

1) $\frac{2}{3}$

2) $\frac{3}{13}$

3) $\frac{9}{10}$

4) $4\frac{3}{8}$

5) 5

6) $7\frac{5}{9}$

7) 2

8) $10\frac{2}{19}$

9) $3\frac{2}{3}=$

Dividing Fractions Using SOAR

S – First fraction stays the **SAME**.

(But make sure you change all mixed numbers to improper fractions first.)

O – OPPOSITE operation (division to MULTIPLICATION).

AR – AND RECIPROCAL

Example:

S (Same)	**O (Opposite Operation)**	**AR (And Reciprocal)**
$\frac{4}{5} \div \frac{2}{3}$	$\frac{4}{5} \times \frac{2}{3} =$	$\frac{4}{5} \bullet \frac{3}{2} =$

You Try:

1) $\frac{5}{8} \div \frac{2}{3} =$	2) $\frac{3}{10} \div \frac{1}{2} =$	3) $\frac{9}{10} \div \frac{1}{4} =$
4) $\frac{3}{8} \div 9 =$	5) $\frac{10}{11} \div \frac{5}{6} =$	6) $\frac{5}{9} \div \frac{13}{9} =$
7) $1\frac{3}{4} \div \frac{7}{8} =$	8) $3 \div 1\frac{1}{8} =$	9) $3\frac{2}{3} \div 2\frac{2}{3} =$

Dividing Fractions Practice

Divide. Use any of the methods we have learned to find the quotient. Answer as a mixed number if possible.

1) $\frac{7}{2} \div \frac{10}{4} =$	2) $\frac{1}{3} \div \frac{1}{2} =$	3) $\frac{2}{4} \div \frac{1}{3} =$
4) $\frac{25}{3} \div \frac{14}{4} =$	5) $\frac{2}{4} \div \frac{1}{2} =$	6) $4\frac{1}{2} \div 2\frac{2}{3} =$
7) $7\frac{2}{4} \div \frac{5}{8} =$	8) $4\frac{1}{2} \div 3\frac{2}{3} =$	9) $1\frac{2}{3} \div \frac{27}{4} =$
10) $\frac{17}{5} \div \frac{13}{4} =$	11) $\frac{4}{5} \div 1\frac{2}{3} =$	12) $\frac{18}{5} \div 4\frac{1}{2} =$