

6th Grade Math

Monday, April 6 – Lesson 2-1, Greatest Common Factor

Tuesday, April 7 – Lesson 2-2, Least Common Multiple

Wednesday, April 8 – Lesson 3-3, Comparing and Ordering Rational Numbers

Thursday, April 9 – Lesson 4-1, Applying GCF and LCM to Fraction Operations

Friday, April 10 – Lesson 4-2, Dividing Fractions

Name _____ Date _____ Class _____

2-1 Examples worked out

Find the GCF

1. 32: 1, 2, 4, 8, 16, 32 GCF = 16

48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

2. 18: 1, 2, 3, 6, 9, 18 GCF = 18

36: 1, 2, 3, 4, 6, 9, 12, 18, 36

3. 28: 1, 2, 4, 7, 14, 28 GCF = 28

56: 1, 2, 4, 7, 8, 14, 28, 56

84: 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84

5. $9 + 15$

9: 1, 3, 9 GCF of 9 & 15 is 3

15: 1, 3, 5, 15

$3 \times (3 + 5) = 9 + 15$

LESSON
2-1

Greatest Common Factor

Reteach

The *greatest common factor*, or GCF, is the largest number that is the factor of two or more numbers.

To find the GCF, first write the factors of each number.

Example

Find the GCF of 18 and 24.

Solution Write the factors of 18 and 24. Highlight the *largest* number that is common to both lists of factors.

Factors of 18: 1, 2, 3, **6**, 9, and 18

Factors of 24: 1, 2, 3, 4, **6**, 8, 12, and 24

The GCF of 18 and 24 is 6.

This process works the same way for more than two numbers.

Find the GCF.

1. 32 and 48

2. 18 and 36

3. 28, 56, and 84

4. 30, 45, and 75

The *distributive principle* can be used with the GCF to rewrite a sum of two or more numbers.

Example

Write $30 + 70$ as the product of the GCF of 30 and 70 and a sum.

Solution

Step 1 Find the GCF of 30 and 70.

Factors of 30: 1, 2, 3, 5, 6, **10**, 15, and 30

Factors of 70: 1, 2, 5, 7, **10**, 14, 35, and 70.

The GCF is 10.

Step 2 Write " $10 \times (? + ?)$." To find the questions marks, divide: $30 \div 10 = 3$;
 $70 \div 10 = 7$

Step 3 So, $30 + 70$ can be written as $10 \times (3 + 7)$.

Rewrite each sum as a product of the GCF and a new sum.

5. $9 + 15 =$

6. $100 + 350 =$

7. $12 + 18 + 21 =$

LESSON
2-1

Greatest Common Factor

Practice and Problem Solving: A/B

List the factors of each number.

1. 5

2. 15

3. 60

4. 6

5. 12

6. 36

Find the *greatest common factor (GCF)* for each pair of numbers.

7. 6 and 9

8. 4 and 8

9. 8 and 12

10. 6 and 15

11. 10 and 15

12. 9 and 12

Write the sum of the numbers as the product of their GCF and another sum.

13. $44 + 40 =$

14. $15 + 81 =$

15. $13 + 52 =$

16. $64 + 28 =$

Solve.

17. A jewelry maker will use 24 jade beads and 30 teak beads to make necklaces. Each necklace will have the same numbers of jade beads and teak beads. What is the greatest number of necklaces she can make? How many beads of each type are on each necklace?

18. The marine-life store would like to set up fish tanks that contain equal numbers of angel fish, swordtails, and guppies. What is the greatest number of tanks that can be set up if the store has 12 angel fish, 24 swordtails, and 30 guppies?

2-1 Answer Sheet

Reteach

1. 16
2. 18
3. 28
4. 15
5. $3 \times (3 + 5)$
6. $50 \times (2 + 7)$
7. $3 \times (4 + 6 + 7)$

Practice and Problem Solving: A/B

1. 1 and 5
2. 1, 3, 5, and 15
3. 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60
4. 1, 2, 3, and 6
5. 1, 2, 3, 4, 6, and 12
6. 1, 2, 3, 4, 6, 9, 12, 18, and 36
7. 3
8. 4
9. 4
10. 3
11. 5
12. 3
13. $44 + 40 = 4 \times (11 + 10)$
14. $15 + 81 = 3 \times (5 + 27)$
15. $13 + 52 = 13 \times (1 + 4)$
16. $64 + 28 = 4 \times (16 + 7)$
17. Since $6 \times (4 + 5) = 24 + 30$, she can make 6 necklaces with 4 jade beads and 5 teak beads.
18. Since $6 \times (2 + 4 + 5) = 12 + 24 + 30$, 6 tanks can be set up with 2 angel fish, 4 swordtails, and 5 guppies.

Name _____ Date _____ Class _____

2-2 Examples worked out.

1.) 2 and 9

Multiples of 2:

2x 2x1, 2x2, 2x3, 2x4, ...

2: 2, 4, 6, 8, ...

Multiples of 9

9x 9x1, 9x2, 9x3, 9x4, ...

9: 9, 18, 27, 36, ...

Multiples of 2 and 9

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

9: 9, 18, 27, 36

LCM = 18

2.) 4 and 6

Multiples of 4: 4, 8, 12, 16, 20, 24

Multiples of 6: 6, 12, 18, 24

LCM = 12

4.) 2, 5, and 6

Multiples of 2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30

Multiples of 5: 5, 10, 15, 20, 25, 30, 35

Multiples of 6: 6, 12, 18, 24, 30, 36

LCM = 30

LESSON
2-2

Least Common Multiple

Reteach

The smallest number that is a multiple of two or more numbers is called the least common multiple (LCM) of those numbers.

To find the least common multiple of 3, 6, and 8, list the multiples for each number and put a circle around the LCM in the three lists.

Multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24

Multiples of 6: 6, 12, 18, 24, 30, 36, 42

Multiples of 8: 8, 16, 24, 32, 40, 48, 56

So 24 is the LCM of 3, 6, and 8.

List the multiples of each number to help you find the least common multiple of each group.

1. 2 and 9

Multiples of 2:

Multiples of 9:

LCM: _____

2. 4 and 6

Multiples of 4:

Multiples of 6:

LCM: _____

3. 4 and 10

Multiples of 4:

Multiples of 10:

LCM: _____

4. 2, 5, and 6

Multiples of 2:

Multiples of 5:

Multiples of 6:

LCM: _____

5. 3, 4, and 9

Multiples of 3:

Multiples of 4:

Multiples of 9:

LCM: _____

6. 8, 10, and 12

Multiples of 8:

Multiples of 10:

Multiples of 12:

LCM: _____

LESSON
2-2

Least Common Multiple

Practice and Problem Solving: A/B

List the first three multiples of each number.

1. 3

2. 7

3. 12

4. 200

Find the *least common multiple* (LCM).

5. 2 and 3

2: _____

3: _____

6. 4 and 5

4: _____

5: _____

7. 6 and 7

6: _____

7: _____

8. 2, 3, and 4

2: _____

3: _____

4: _____

9. 5, 6, and 7

5: _____

6: _____

7: _____

10. 8, 9, and 10

8: _____

9: _____

10: _____

Solve.

11. Sixty people are invited to a party. There are 24 cups in a package and 18 napkins in a package. What is the least number of packages of cups and napkins that can be bought if each party guest gets one cup and one napkin?

12. The science club sponsor is ordering caps and shirts for the boys and girls in the science club. There are 45 science club members. If the caps come in packages of 3 and the shirts come in packages of 5, what is the least number of packages of caps and shirts that will need to be ordered?

13. Some hot dogs come in packages of 8. Why would a baker of hot dog buns package 7 hot dog buns to a package?

14. How are the GCF and the LCM alike and different?

2-2 Answer Sheet

Reteach

1. 2, 4, 6, 8, 10, 12...18; 9, 18, 27, 36 ...; 18
2. 4, 8, 12...; 6, 12...; 12
3. 4, 8, 12, 16, 20...; 10, 20...; 20
4. 2, 4, 6...26, 28, 30...; 5, 10, 15, 20, 25, 30...; 6, 12, 18, 24, 30; 30
5. 3, 6, 9...33, 36...; 4, 8, 12...28, 32, 36; 9, 18, 27, 36; 36
6. 8, 16, 24...112, 120; 10, 20...110, 120; 12, 24, 36...108, 120; 120

Practice and Problem Solving: A/B

1. 3, 6, and 9
2. 7, 14, and 21
3. 12, 24, and 36
4. 200, 400, and 600
5. 2, 4, 6, 8, 10, 12...; 3, 6, 9, 12...; 6
6. 4, 8, 12, 16, 20...; 5, 10, 15, 20...; 20
7. 6, 12, 18, 24, 30, 36, 42...; 7, 14, 21, 28, 35, 42...; 42
8. 2, 4, 6, 8, 10, 12...; 3, 6, 9, 12...; 4, 8, 12...; 12
9. 5, 10, 15...210; 6, 12, 18...210; 7, 14, 21...210; 210
10. 8, 16...360; 9, 18...360; 10, 20...360; 360
11. Cups: 24, 48, 72; napkins: 18, 36, 54, 72; the LCM is 72, so 3 packages of cups and 4 packages of napkins will be needed.
12. Caps: 3, 6, 9...36, 39, 45; shirts: 5, 10...35, 40, 45; 15 packages of caps will be needed and 9 packages of shirts will be needed.
13. The LCM of 8 and 7 is 56, which is greater than any other LCM of 8 and a number less than 8. This insures that the consumer will have to buy the greatest number of packages of buns in order to use up all 8 hot dogs.
14. The GCF and the LCM are alike, because they are used to find common divisors of two numbers. The GCF and LCM are different in that the GCF is found by looking at the factors of a number, whereas the LCM is found by looking at the multiples of a number.

Name _____ Date _____ Class _____

LESSON 3-3 Comparing and Ordering Rational Numbers

Reteach

You can write decimals as fractions or mixed numbers. A place value table will help you read the decimal. Remember the decimal point is read as the word "and."

To write 0.47 as a fraction, first think about the decimal in words.

Ten Thousandths	
Thousandths	
Hundredths	7
Tenths	4
Ones	0

Fraction Into Decimal

Use T.I.B.O. point + +

0.47 is read "forty-seven hundredths." The place value of the decimal tells you the denominator is 100.

$$0.47 = \frac{47}{100}$$

(examples at the bottom)

To write 8.3 as a mixed number, first think about the decimal in words.

Ten Thousandths	
Thousandths	
Hundredths	
Tenths	3
Ones	8

8.3 is read "eight and three tenths." The place value of the decimal tells you the denominator is 10. The decimal point is read as the word "and."

$$8.3 = 8\frac{3}{10}$$

Write each decimal as a fraction or mixed number.

1.061 Sixty-One Hundredths 2. 3,43 Three and Forty-Three Hundredths 3. 0.009 Nine Thousandths

$$\frac{61}{100}$$

$$2\frac{343}{100}$$

$$\frac{9}{1000}$$

T.I.B.O.

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LESSON
3-3

Comparing and Ordering Rational Numbers

Practice and Problem Solving: A/B

Write each fraction as a decimal. Round to the nearest hundredth if necessary.

1. $\frac{3}{8}$ _____

2. $\frac{7}{5}$ _____

3. $\frac{21}{7}$ _____

4. $\frac{5}{3}$ _____

Write each decimal as a fraction or mixed number in simplest form.

5. 0.55 _____

6. 10.6 _____

7. -7.08 _____

Write the numbers in order from least to greatest.

8. 0.5, 0.05, $\frac{5}{8}$ _____

9. 1.3, $1\frac{1}{3}$, 1.34 _____

10. 2.07, $2\frac{7}{10}$, 2.67, -2.67 _____

Solve.

11. Out of 45 times at bat, Raul got 19 hits. Find Raul's batting average as a decimal rounded to the nearest thousandth. _____

12. Karen's batting average was 0.444. She was at bat 45 times. How many hits did she get? _____

13. To have batting averages over 0.500, how many hits in 45 times at bat would Raul and Karen need? _____

14. A car travels at 65 miles per hour. Going through construction, it travels at $\frac{3}{5}$ this speed. Write this fraction as a decimal and find the speed. _____

15. A city's sales tax is 0.07. Write this decimal as a fraction and tell how many cents of tax are on each dollar. _____

16. A ream of paper contains 500 sheets of paper. Norm has 373 sheets of paper left from a ream. Express the portion of a ream Norm has as a fraction and as a decimal. _____

3-3 Answer Sheet

Reteach

1. $\frac{61}{100}$
2. $3\frac{43}{100}$
3. $\frac{9}{1000}$
4. $4\frac{7}{10}$
5. $1\frac{5}{10}$ or $1\frac{1}{2}$
6. $\frac{13}{100}$
7. $5\frac{2}{1000}$ or $5\frac{1}{500}$
8. $\frac{21}{1000}$

Practice and Problem Solving: A/B

1. 0.375
2. 1.4
3. 3
4. 1.67
5. $\frac{11}{20}$
6. $10\frac{3}{5}$
7. $-7\frac{2}{25}$
8. 0.05, 0.5, $\frac{5}{8}$
9. 1.3, $1\frac{1}{3}$, 1.34
10. -2.67, 2.07, 2.67, $2\frac{7}{10}$
11. 0.422
12. 20
13. 23 or more
14. 0.6, 39 mph
15. $\frac{7}{100}$, 7 cents
16. $\frac{373}{500}$; 0.746

Name _____ Date _____ Class _____

LESSON 4-1 Applying GCF and LCM to Fraction Operations

Reteach

How to Multiply a Fraction by a Fraction

$$\frac{2}{3} \cdot \frac{3}{8}$$

Multiply numerators.

$$\frac{2 \cdot 3}{3 \cdot 8} = \frac{6}{24}$$

Multiply denominators.

Divide by the greatest common factor (GCF).
The GCF of 6 and 24 is 6.

$$\frac{6 \div 6}{24 \div 6} = \frac{1}{4}$$

How to Add or Subtract Fractions

$$\frac{5}{6} + \frac{11}{15}$$

Rewrite over the least common multiple (LCM).
The least common multiple of 6 and 15 is 30.

$$\frac{25}{30} + \frac{22}{30}$$

Add the numerators.

$$= 1 \frac{17}{30}$$

Multiply. Use the greatest common factor.

$$1. \frac{3}{4} \cdot \frac{7}{9} = \frac{21}{36} = \frac{7}{12} \quad \text{GCF } 3$$

$$4. \frac{3}{10} \cdot \frac{3}{10} = \frac{9}{100} = \frac{9}{100} \quad \text{GCF } 3$$

$$2. \frac{7}{9} \cdot \frac{14}{63} = \frac{98}{567} = \frac{2}{9} \quad \text{GCF } 7$$

$$5. \frac{4}{9} \cdot \frac{3}{4} = \frac{12}{36} = \frac{1}{3} \quad \text{GCF } 12$$

$$3. \frac{7}{11} \cdot \frac{22}{28} = \frac{154}{308} = \frac{1}{2} \quad \text{GCF } 154$$

$$6. \frac{3}{7} \cdot \frac{2}{3} = \frac{6}{21} = \frac{2}{7} \quad \text{GCF } 3$$

Add or subtract. Use the least common multiple.

$$7. \frac{7}{9} + \frac{5}{12} = \frac{28}{36} + \frac{15}{36} = \frac{43}{36}$$

$$8. \frac{21}{24} - \frac{3}{8} = \frac{21}{24} - \frac{9}{24} = \frac{12}{24} = \frac{1}{2}$$

$$9. \frac{11}{15} + \frac{7}{12} = \frac{44}{60} + \frac{35}{60} = \frac{79}{60}$$

$$\frac{28}{36} = \frac{4 \cdot 7}{4 \cdot 9} + \frac{5 \cdot 3}{12 \cdot 3} = \frac{28}{36} + \frac{15}{36} = \frac{43}{36}$$

$$\frac{21}{24} - \frac{3}{8} = \frac{21}{24} - \frac{9}{24} = \frac{12}{24} = \frac{1}{2}$$

$$\frac{44}{60} + \frac{35}{60} = \frac{79}{60}$$

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LESSON
4-1**Applying GCF and LCM to Fraction Operations****Practice and Problem Solving: A/B**

Multiply. Use the greatest common factor to write each answer in simplest form.

1. $\frac{2}{3} \cdot \frac{6}{7}$

2. $\frac{3}{4} \cdot \frac{2}{3}$

3. $\frac{8}{21} \cdot \frac{7}{10}$

4. $24 \cdot \frac{5}{6}$

5. $32 \cdot \frac{3}{8}$

6. $21 \cdot \frac{3}{7}$

Add or subtract. Use the least common multiple as the denominator.

7. $\frac{4}{15} + \frac{5}{6}$

8. $\frac{5}{12} - \frac{3}{20}$

9. $\frac{3}{5} + \frac{3}{20}$

10. $\frac{5}{8} - \frac{5}{24}$

11. $3\frac{5}{12} + 1\frac{3}{8}$

12. $2\frac{9}{10} - 1\frac{7}{18}$

Solve.

13. Louis spent 12 hours last week practicing guitar. If $\frac{1}{4}$ of the time was spent practicing chords, how much time did Louis spend practicing chords?
- _____

14. Angie and her friends ate $\frac{3}{4}$ of a pizza. Her brother Joe ate $\frac{2}{3}$ of what was left. How much of the original pizza did Joe eat?
- _____

4-1 Answer Sheet

Reteach

1. $\frac{7}{12}$

2. $\frac{2}{9}$

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

4. $2\frac{2}{5}$

5. $\frac{1}{3}$

6. $\frac{2}{7}$

7. $1\frac{7}{36}$

Practice and Problem Solving: A/B

1. $\frac{4}{7}$

2. $\frac{1}{2}$

3. $\frac{4}{15}$

4. 20

5. 12

6. 9

7. $1\frac{1}{10}$

8. $\frac{4}{15}$

9. $\frac{3}{4}$

10. $\frac{5}{12}$

11. $4\frac{19}{24}$

12. $1\frac{23}{45}$

13. 3 h

14. $\frac{1}{6}$ of a pizza

Name _____ Date _____ Class _____

LESSON 4-2 **Dividing Fractions**

Reteach

When Dividing Fractions

Two numbers are reciprocals if their product is 1.

$\frac{2}{3}$ and $\frac{3}{2}$ are reciprocals because $\frac{2}{3} \cdot \frac{3}{2} = \frac{6}{6} = 1$.

Dividing by a number is the same as multiplying by its reciprocal.

$\frac{1}{4} \div \frac{1}{2} = \frac{1}{4} \cdot \frac{2}{1} = \frac{2}{4} = \frac{1}{2}$

So, you can use reciprocals to divide by fractions.

Find $\frac{2}{3} \div \frac{1}{4}$.

First, rewrite the expression as a multiplication expression.

Use the reciprocal of the divisor: $\frac{1}{4} \cdot \frac{4}{1} = 1$.

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

Think: 6 thirds is 2, and 2 of the 8 thirds are left over.

Keep Change Flip
 K C F
 1 2 K 1 2
 1 3 F 3 1
 Then multiply across

Rewrite each division expression as a multiplication expression. Then find the value of the expression. Write each answer in simplest form.

1. $\frac{1}{4} \div \frac{3}{8}$

keep 1/4

Change to x (division to multiplication)

$\frac{1}{4} \times \frac{8}{3} = \frac{8}{12} = \frac{2}{3}$

KCF

2. $\frac{1}{2} \div \frac{1}{4}$

1/2 x 4/1 = 4/2 = 2

$\frac{4}{2} = 2$

KCF

3. $\frac{3}{8} \div \frac{1}{2}$

3/8 x 2/1 = 6/8

$\frac{6}{8} = \frac{3}{4}$

KCF

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

1/3 x 4/3 = 4/9

$\frac{4}{9}$

LESSON
4-2**Dividing Fractions****Practice and Problem Solving: A/B****Find the reciprocal.**

1. $\frac{5}{7}$ _____

2. $\frac{3}{4}$ _____

3. $\frac{3}{5}$ _____

4. $\frac{1}{10}$ _____

5. $\frac{4}{9}$ _____

6. $\frac{13}{14}$ _____

7. $\frac{7}{12}$ _____

8. $\frac{3}{10}$ _____

9. $\frac{5}{8}$ _____

Divide. Write each answer in simplest form.

10. $\frac{5}{6} \div \frac{1}{2}$ _____

11. $\frac{7}{8} \div \frac{2}{3}$ _____

12. $\frac{9}{10} \div \frac{3}{4}$ _____

13. $\frac{3}{4} \div 9$ _____

14. $\frac{6}{9} \div \frac{6}{7}$ _____

15. $\frac{5}{6} \div \frac{3}{10}$ _____

16. $\frac{5}{6} \div \frac{3}{4}$ _____

17. $\frac{5}{8} \div \frac{3}{5}$ _____

18. $\frac{21}{32} \div \frac{7}{8}$ _____

Solve.19. Mrs. Marks has $\frac{3}{4}$ pound of cheese to use making sandwiches.She uses about $\frac{1}{32}$ pound of cheese on each sandwich. How many sandwiches can she make with the cheese she has?

20. In England, mass is measured in units called *stones*. One pound equals $\frac{1}{14}$ of a stone. A cat weighs $\frac{3}{4}$ stone. How many pounds does the cat weigh?

21. Typographers measure font sizes in units called *points*. One point is equal to $\frac{1}{72}$ inch. Esmeralda is typing a research paper on her computer. She wants the text on the title page to be $\frac{1}{2}$ inch tall. What font size should she use?

4-2 Answer Sheet

Reteach

1. $\frac{1}{4} \cdot \frac{3}{1} = \frac{3}{4}$

2. $\frac{1}{2} \cdot \frac{4}{1} = 2$

3. $\frac{3}{8} \cdot \frac{2}{1} = \frac{6}{8} = \frac{3}{4}$

4. $\frac{1}{3} \cdot \frac{4}{3} = \frac{4}{9}$

5. $\frac{2}{5}$

6. $\frac{1}{4}$

7. $\frac{5}{16}$

8. $\frac{1}{4}$

Practice and Problem Solving: A/B

1. $\frac{7}{5}$

2. $\frac{4}{3}$

3. $\frac{5}{3}$

4. 10

5. $\frac{9}{4}$

6. $\frac{14}{13}$

7. $\frac{12}{7}$

8. $\frac{10}{3}$

9. $\frac{8}{5}$

10. $1\frac{2}{3}$

11. $1\frac{5}{16}$

12. $1\frac{1}{5}$

Practice and Problem Solving: A/B (Continued)

13. $\frac{1}{12}$

14. $\frac{7}{9}$

15. $2\frac{7}{9}$

16. $1\frac{1}{9}$

17. $1\frac{1}{24}$

18. $\frac{3}{4}$