6^{th} Grade Math Summer Packet

Name: _____

Period: _____

Grade: _____

SCORE: _____

Welcome to 6th Grade,

6th Grade Summer Math Assignment:

1. Student will read teacher's notes and examples for each concept.
2. Student will complete skills practice questions for each concept.
3. Student will complete Posttest.

The packet will be graded on Monday, August 21st

NOTE: ALL STUDENTS WILL ALSO BE EXPECTED TO KNOW THEIR MULTIPLICATION TABLES UP TO 12 x 12.

There is a practice one attached to end of this packet but is not a part of the summer packet grade.

DIVISIBILITY RULES

Number	Divisibility Rule	Example
2	**If the number is even.** (the last digit is a 0, 2, 4, 6, or 8)	38; Is divisible by 2 because it is an even number.
3	**If the <u>sum</u> of the digits is divisible by 3.**	816; 8+ 1+ 6 = 15 The sum 15 is divisible by 3, therefore 816 is also divisible by 3.
4	**If the last two digits are divisible by 4.**	20,5**36**; The last two digits are **36**, which is divisible by 4, therefore, 20,536 is divisible by 4.
5	**If the last digit (one's place) is 0 or 5.**	1,285; Since the last digit is a 5 then it is divisible by 5.
6	**If the number is divisible by BOTH 2 and 3**	2,862; 2 + 8 + 6 + 2 = 18, which is divisible by 3 and the last digit is even which is divisible by 2, therefore it is also divisible by 6.
9	**If the sum of the digits, is divisible by 9.**	9,126; 9 + 1 + 2 + 6 = 18 The sum 18 is divisible by 9, therefore 9,126 is also divisible by 9.
10	**If the last digit is 0.**	1,180 Since the last digit is a 0 then it is divisible by 10.

Circle the NUMBER(S) that the given number is divisible.

1.	88	2	3	4	5	6	9	10
2.	48	2	3	4	5	6	9	10
3.	50	2	3	4	5	6	9	10
4.	98	2	3	4	5	6	9	10
5.	104	2	3	4	5	6	9	10
6.	1,116	2	3	4	5	6	9	10
7.	832	2	3	4	5	6	9	10
8.	51	2	3	4	5	6	9	10
9.	117	2	3	4	5	6	9	10
10.	4,230	2	3	4	5	6	9	10

GCF

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

Example

Find the GCF of 18 and 24. To find the GCF, first write the factors of each number.

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

32 _____

48 _____

GCF _____

2. 18 and 36

18_____

36_____

GCF _____

3. 14 and 28

14_____

28_____

GCF_____

4. 30, and 45

30_____

45_____

GCF_____

LCM

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

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.

5. 7 and 9

Multiples of 7:

_____

Multiples of 9:

_____

LCM_____

6. 14 and 8

Multiples of 14:

_____

Multiples of 8:

_____

LCM_____

7. 16 and 12

Multiples of 16:

_____

Multiples of 12:

_____

LCM_____

SIMPLIFYING FRACTIONS

A FRACTION IS IN SIMPLEST FORM WHEN THE GCF OF THE NUMERATOR AND DENOMINATOR IS 1.

Method 1: SIMPLIFY BY THE GCF

Example: Write the fraction 42/56 in simplest form.

STEP 1: Find the GCF of the numerator and denominator.

42: 1, 2, 3, 6, 7, 14, 21, 42

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

THE GCF IS 14

STEP 2: Divide the numerator and denominator by the GCF

$$\frac{42}{56} \div 14 = \frac{3}{4}$$

Therefore 42/56 in simplest form is ¾.

Method 2: SIMPLIFY USING DIVISIBILITY RULES

Example: Write the fraction 42/56 in simplest form.

Since 42 and 56 are both even start with 2 and then re-visit the problem.

$$\frac{42}{56} \div 2 = \frac{21}{28} \div 7 = \frac{3}{4}$$

Use the rules of divisibility and your knowledge of GCF's to simplify the following fractions.

1. $\frac{18}{60}$

2. $\frac{12}{54}$

3. $\frac{15}{45}$

4. $\frac{16}{64}$

5. $\frac{18}{32}$

6. $\frac{10}{65}$

7. $\frac{9}{63}$

8. $\frac{8}{96}$

9. $\frac{13}{39}$

11. $\frac{25}{75}$

11. $\frac{22}{30}$

12. $\frac{28}{42}$

LEAST COMMON DENOMINATOR (LCD)

TWO FRACTIONS HAVE A COMMON DENOMINATOR IF THEIR DENOMINATORS ARE THE SAME. **THE LEAST COMMON DENOMINATOR (LCD) OF TWO FRACTIONS IS THE LEAST COMMON MULTIPLE OF THEIR DENOMINATORS.**

EXAMPLE: 5/8 AND 7/12

STEP 1: IDENTIFY THE DENOMINATORS AND THEN FIND THE LCM OF THE TWO DENOMINATORS.

8: 8, 16, **24**, 32 …..
12: 12, **24**, 36,…….

THE LCM OF 8 AND 12 IS 24. THEREFORE THE LCD IS 24.

IDENTIFY THE LEAST COMMON DENOMINATOR (LCD) OF THE FOLLOWING FRACTIONS.

1. **4/5 AND 6/7**

LCD= _____

2. **9/10 AND 14/15**

LCD= _____

3. **3/7 AND 4/21**

LCD = _____

4. **5/12 AND 1/6**

LCD = _____

5. **11/12 AND 9/18**

LCD = _____

6. **3/20 AND 8/25**

LCD = _____

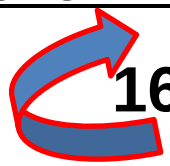
7. **7/8 AND 5/16**

LCD = _____

8. **14/15 AND 13/ 24**

LCD = _____

CHANGING MIXED NUMBERS TO IMPROPER FRACTIONS

EXAMPLE: 

$$16\ \tfrac{3}{4} = \frac{67}{4}$$

STEP 1: MULTIPLY THE DENOMINATOR BY THE WHOLE NUMBER
4 X 16 = 64

STEP 2: ADD THE NUMERATOR TO THE PRODUCT FROM STEP 1.
64 + 3 = 67

STEP 3: KEEP THE ORIGINAL DENOMINATOR THE SAME.
67/4

CHANGING IMPROPER FRACTIONS TO MIXED NUMBERS

TO CHANGE AN IMPROPER FRACTION TO A MIXED NUMBER, DIVIDE THE NUMERATOR BY THE DENOMINATOR.

67 = (denominator) $4\overline{)67}$ = $16\ \tfrac{3}{4}$

16 (whole number)

- 4
27
- 24
3 (numerator)

Change the following mixed numbers to improper fractions.

1. $14\ \tfrac{1}{2} =$
2. $12\ \tfrac{1}{4} =$
3. $15\ \tfrac{3}{4} =$

Change the following improper fractions to mixed numbers in simplest form.

5. $\frac{87}{5} =$
6. $\frac{56}{9} =$
7. $\frac{37}{15} =$

USE STANDARD ALGORITHM MULTIPLICATION TO COMPLETE THE FOLLOWING PROBLEMS. BE SURE TO SHOW ALL WORK!!!

1.

12 X 75 = _____

2.

35 X 47 = _____

3.

124 X 49 = _____

4.

785 X 112 = _____

5.

7, 450 X 6 = _____

6. 71 X 54 = _____

POST TEST

1. Which of these **is a factor** of 15?

   A 2 C 10

   B 3 D 30

2. Which is **not** a factor of 36?

   A 3 C 36

   B 6 D 72

3. Which is **the GCF of 8 and 12**?

   A 2 C 24

   B 4 D 96

4. Rose picked 18 tulips and 20 daffodils. She divided the flowers into groups so that the same number of tulips and daffodils were in each bouquet. What is the greatest number of bouquets she could have made?

   A 2 C 90

   B 5 D 180

5. Which of the **following is a multiple of 8**?

   A 4 C 20

   B 8 D 100

6. Which of the following is **not** a multiple of 12?

   A 12 C 100

   B 24 D 144

7. Every fourth visitor to a museum gets a free bumper sticker. Every tenth visitor to that museum gets a free key chain. Which visitor each day will be the first one to get both the bumper sticker and the key chain?

   A tenth C fortieth

   B twentieth D hundredth

8. Which pair of numbers has a GCF of 3?

   A 3 and 18 C 8 and 24

   B 12 and 18 D 1 and 3

9. Which pair of numbers has a LCM of 12?

   A 1 and 6 C 2 and 6

   B 2 and 3 D 3 and 4

10. Doug has been training all year to run in a marathon. He ran 63 miles each week for the past year (52 weeks). How many miles did Doug run altogether?

_____

11. What is 34/60 in simplest form?

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12. Marci mailed 9 letters at the post office. Each letter weighed 13 ounces. What was the total weight of the letters?

_____

13. Write the mixed number 23 ½ as an improper fraction.

_____

14. Write the improper fraction 59/14 as a mixed number in simplest form.

_____

15. What is the least common denominator (LCD)of 9/16 and 7/12?

_____

16. Ann and Joe donated $22 for every lap they swam in a swim-a-thon. Ann swam 21 laps and Joe swam 15 laps. How much money did they donate in all?

_____

17. Write the mixed number 54 ¼ as an improper fraction.

_____

18. Write the improper fraction 78/5 as a mixed number in simplest form.

_____

19. What is the least common denominator of 4/9 and 5/7?

_____

20. Circle the numbers 4,506 divisible by 2 3 4 5 6 9 10

OPTIONAL (FOR PRACTICE)

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