LEARNING ACTIVITY SHEET

- Grade 6 -

Most Essential Learning Competency
(MELC)

Quarter 1, Week 1

Adds and subtracts simple fractions and mixed numbers without or with regrouping

(M6NS-Ia-86)

Note: The teacher is encouraged to do vernacular translation of this material. Revision is also suggested for the purpose of contextualization and addition of more activities. You can also download more math materials @ https://sweetformula.fun.

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Name: _____ Grade Level: _____
Section: _____ Date: _____

LEARNING ACTIVITY SHEET
Addition and Subtraction of Simple Fractions and Mixed Numbers Without or With Regrouping

Background Information for Learners

This material will help you add and subtract simple fractions and mixed numbers without or with regrouping. Bear in mind the following definitions:

Similar fractions – fractions with the same denominators

Examples: $a.\ \frac{2}{5}, \frac{4}{5}$ $b.\ \frac{1}{7}, \frac{5}{7}, \frac{6}{7}$

Dissimilar fractions – fractions with different denominators

Examples: $a.\ \frac{3}{7}, \frac{5}{9}$ $b.\ \frac{4}{11}, \frac{7}{13}, \frac{3}{22}$

Mixed Number – combination of a whole number and a fraction

Examples: $1\ \frac{4}{7},\ 2\ \frac{7}{11},\ 5\ \frac{6}{13}$

Least Common Denominator (LCD) – least common multiple of the denominators of a given set of fractions

Example: $\underline{24}$ is the LCD of $\frac{1}{6}$ and $\frac{3}{8}$ because it is the least common multiple of the denominators 6 and 8

Greatest Common Factor (GCF) – greatest factor that divides two or more numbers

Example: $\underline{4}$ is the GCF of 8 and 12

Factors of 8 = 1, 2, 4, 8

Factors of 12 = 1, 2, 3, 4, 6, 12

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Common Factors = 1, 2, 4 (greatest – 4)

In adding or subtracting similar fractions, we simply add or subtract their numerators and copy the common denominator. If the resulting fraction is not yet simplified, reduce it to lowest terms.

Examples:

ADDITION

$$a.\ \frac{1}{5}+\frac{2}{5}=\frac{1+2}{5}=\frac{3}{5} \qquad b.\ \frac{1}{15}+\frac{4}{15}+\frac{7}{15}=\frac{1+4+7}{15}=\frac{12}{15}\div\frac{3}{3}=\frac{4}{5}$$

(GCF)

SUBTRACTION

$$a.\ \frac{3}{7}-\frac{1}{7}=\frac{3-1}{7}=\frac{2}{7} \qquad b.\ \frac{13}{22}-\frac{7}{22}-\frac{3}{22}=\frac{13-7-3}{15}=\frac{3}{15}\div\frac{3}{3}=\frac{1}{5}$$

(GCF)

In adding or subtracting dissimilar fractions, follow the following steps:

a. Identify the *Least Common Denominator (LCD)* of the given fractions
b. Rewrite the fractions into their equivalent fractions using the LCD
c. Add or subtract the resulting equivalent fractions following the method in adding similar fractions
d. Reduce the resulting fraction to lowest terms if it is not yet simplified

Examples:

ADDITION

$$\frac{3}{4}+\frac{1}{6}=\frac{?}{12}+\frac{?}{12} \Rightarrow \frac{3}{4}+\frac{1}{6}=\frac{9}{12}+\frac{2}{12} \Rightarrow \frac{9}{12}+\frac{2}{12}=\frac{11}{12}$$

LCD = 12
4 -> 4, 8, 12, 16, ...
6 -> 6, 12, 18, ...

Divide the LCD by the given denominator and multiply the result by the numerator to get the equivalent fraction
12 ÷ 4 = 3, 3 x 3 = 9
12 ÷ 6 = 2, 2 x 1 = 2

Result

SUBTRACTION

$$\frac{5}{6}-\frac{3}{8}=\frac{?}{24}+\frac{?}{24} \Rightarrow \frac{5}{6}-\frac{3}{8}=\frac{20}{24}-\frac{9}{24} \Rightarrow \frac{20}{24}-\frac{9}{24}=\frac{11}{24}$$

LCD = 24
6 -> 6, 12, 18, 24, 30, ...
8 -> 8, 16, 24, 32, ...

Divide the LCD by the given denominator and multiply the result by the numerator to get the equivalent fraction
24 ÷ 6 = 4, 4 x 5 = 20
24 ÷ 8 = 3, 3 x 3= 9

Result

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In adding or subtracting mixed numbers, add or subtract the whole numbers and fractional parts separately. Apply regrouping if necessary.

Examples:

ADDITION

$$3\frac{2}{5}+1\frac{1}{5}=\underbrace{(3+1)}_{\text{Whole Numbers}}+\underbrace{\left(\frac{2}{5}+\frac{1}{5}\right)}_{\text{Fractions}}=4+\left(\frac{3}{5}\right)=4\frac{3}{5}$$

SUBTRACTION

$$4\frac{5}{7}-2\frac{3}{7}=\underbrace{(4-2)}_{\text{Whole Numbers}}+\underbrace{\left(\frac{5}{7}-\frac{3}{7}\right)}_{\text{Fractions}}=2+\left(\frac{2}{7}\right)=2\frac{2}{7}$$

VERTICAL / STACKED FORMAT

$$+\begin{array}{r} 2\frac{4}{9} \\ 3\frac{1}{9} \\ \hline 5\frac{5}{9} \end{array}$$

Sum of the Whole Numbers — Sum of the Fractional Parts

$$-\begin{array}{r} 6\frac{4}{5} \\ 3\frac{2}{5} \\ \hline 3\frac{2}{5} \end{array}$$

Difference of the Whole Numbers — Difference of the Fractional Parts

REGROUPING CASE SAMPLE

$$7\frac{2}{9}-3\frac{1}{3}$$

$$7\frac{2}{9}-3\frac{3}{9}$$

Dissimilar Fractions transformed to Similar Fractions

$$\left(6+1+\frac{2}{9}\right)-3\frac{3}{9}$$
$$\left(6+\frac{9}{9}+\frac{2}{9}\right)-3\frac{3}{9}$$
$$\left(6+\frac{11}{9}\right)-3\frac{3}{9}$$
$$6\frac{11}{9}-3\frac{3}{9}$$

Subtracting the fractions will result to a negative value since 3 is greater than 2. In this case, we must do the regrouping: Borrow 1 or 9/9 from 7 to make its fractional part larger.

$$(6-3)+\left(\frac{11}{9}-\frac{3}{9}\right)$$

Continue the operation

$$3+\frac{8}{9}$$
$$3\frac{8}{9}$$

Result

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Learning Competency with code

Adds and subtracts simple fractions and mixed numbers without or with regrouping (**M6NS-Ia-86)**

Activity 1

Fill in the boxes with the correct values.

1. $\frac{\square}{25} - \frac{4}{25} = \frac{19}{25}$
2. $\frac{4}{7} + \frac{2}{\square} + \frac{1}{7} = 1$
3. $3 + \square\frac{5}{15} = 9\frac{1}{3}$
4. $10\frac{1}{4} + \square\frac{1}{2} = 32\frac{3}{\square}$
5. $\frac{19}{28} - \frac{1}{\square} = \frac{19}{28} - \frac{2}{28} = \frac{17}{\square}$
6. $\frac{\square}{12} + \frac{5}{16} = \frac{20+15}{\square} = \frac{35}{\square}$
7. $37\frac{11}{21} - 16\frac{8}{21} = 21\frac{3}{\square}$
8. $\frac{6}{13} + \frac{2}{13} - \frac{1}{13} = \frac{\square}{13}$
9. $9\frac{2}{5} - 4\frac{3}{5} = \left(8 + \frac{\square}{\square} + \frac{2}{5}\right) - 4\frac{3}{5} = \left(8 + \frac{7}{5}\right) - 4\frac{3}{5} = 8\frac{7}{5} - 4\frac{3}{5} = 4\frac{4}{5}$
10. $6\frac{1}{6} + 2\frac{5}{6} = (6+2) + \left(\frac{1}{6} + \frac{5}{6}\right) = 8 + \frac{6}{6} = 8 + \square = \square$

Activity 2

Perform the indicated operations. Express your answer in simplest form.

1. $\frac{9}{44} + \frac{5}{44} =$

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2. $\frac{77}{100} - \frac{7}{10} =$
3. $4\frac{1}{3} + 6\frac{2}{3} =$
4. $12\frac{7}{9} - 7\frac{8}{9} =$
5. $140 + 21\frac{4}{30} =$
6. $9 - 1\frac{2}{5} =$
7. $11\frac{3}{8} - 5 =$
8. $\frac{3}{5} + \frac{1}{5} + \frac{1}{9} =$
9. $61\frac{6}{13} - 34\frac{6}{13} =$
10. $4\frac{1}{2} + 3\frac{1}{4} + \frac{1}{4} - 1 =$

Activity 3

TRUE OR FALSE. Read each statement below carefully. Write **T** if you think the given statement is true. Write **F** if you think the given statement is false. Place your answer on the space provided after each statement.

1. The sum of $\frac{1}{4}$ and $\frac{1}{4}$ is $\frac{1}{2}$. ____
2. Dissimilar fractions have different denominators. ____
3. $19 - 5\frac{8}{9} = 14\frac{8}{9}$. ____
4. The LCD of $\frac{5}{12}, \frac{7}{16}$, and $\frac{1}{24}$ is 48. ____
5. The difference of $8\frac{5}{8}$ and $3\frac{7}{8}$ is $5\frac{2}{8}$. ____
6. To reduce the fraction $\frac{15}{45}$ to lowest terms, divide both its numerator and denominator by 5. ____
7. $\frac{19}{27} + \frac{2}{27} = \frac{2}{27} + \frac{19}{27} = \frac{7}{9}$. ____

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8. In adding similar fractions, add the numerators and copy the common denominator. ____
9. The sum of $\frac{6}{11}$ and $\frac{1}{22}$ is equal to the difference of $\frac{15}{22}$ and $\frac{3}{11}$.____
10. It is impossible to add a whole number and a fraction. ____

Activity 4

MULTIPLE CHOICE. Read the questions carefully. Write the letter of your choice on the space provided before each number.

_____ 1. Alex bought $5\frac{2}{5}$ kilograms of meat. He cooked $2\frac{3}{5}$ kilograms for dinner. How many kilograms of meat were left?

a. $2\frac{1}{5}$ b. $2\frac{2}{5}$ c. $3\frac{3}{5}$ d. $2\frac{4}{5}$

_____ 2. What is the sum of $10\frac{2}{3}, 11\frac{1}{3}$ and $12\frac{3}{8}$?

a. $35\frac{5}{8}$ b. $34\frac{3}{8}$ c. $33\frac{5}{8}$ d. $32\frac{3}{8}$

_____ 3. Which of the following number sentences can we use to solve the following problem?

"John spent his time reading his newly purchased mathematics book for $\frac{3}{5}$ hr in the morning, $\frac{4}{5}$ hr in the afternoon and $\frac{1}{4}$ hr in the evening. How many hours in total did he spend in reading the said book?"

a. $\frac{3}{5}+\frac{4}{5}=\frac{1}{4}+n$ b. $\frac{3}{5}+\frac{4}{5}+\frac{1}{4}+n=0$
c. $\frac{3}{5}+\frac{4}{5}+\frac{1}{4}=n$ d. $\frac{3}{5}-\frac{4}{5}-\frac{1}{4}=n$

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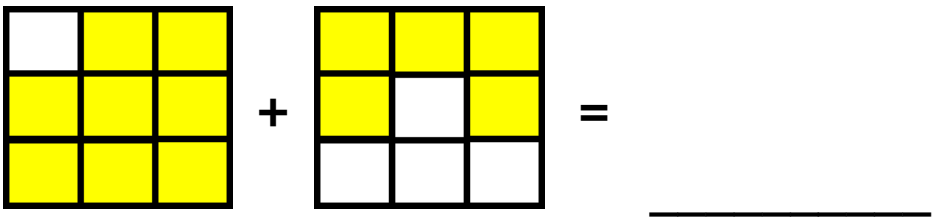
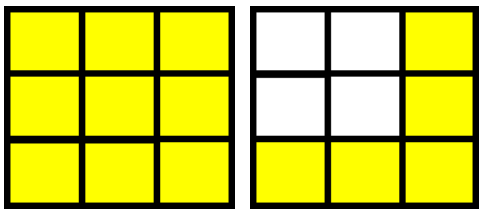
_____ 4. Complete this statement: The difference of $6\frac{1}{4}$ and $3\frac{1}{2}$ is equal to the sum of _____.

a. $1\frac{1}{2}$ and $1\frac{1}{4}$
b. $2\frac{1}{2}$ and $1\frac{1}{4}$
c. $1\frac{1}{2}$ and $2\frac{1}{4}$
d. $1\frac{1}{2}$ and $1\frac{3}{4}$

_____ 5. Which pair of shaded squares indicates the correct sum?



a.



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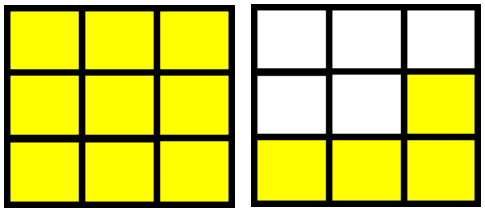
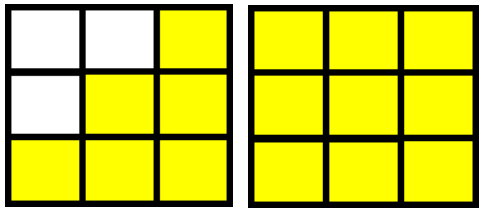
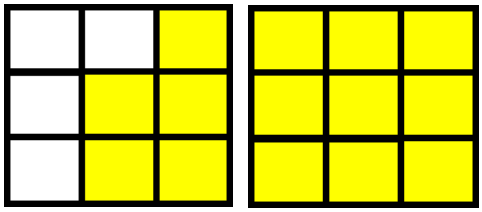


c.



d.



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Reflection

Complete the following statement:

I have learned that _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

References

Teacher's Guide in Grade 6 Mathematics
Learner's Material in Grade 6 Mathematics

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Answer Key

Activity 1

1. 23
2. 7
3. 6
4. 22, 4
5. 14, 28
6. 5, 48, 48
7. 21
8. 7
9. 5, 5
10. 1, 9

Activity 2

1. $\frac{7}{\frac{22}{7}}$
2. $\frac{}{100}$
3. 11
4. $4\frac{8}{9}$
5. $161\frac{2}{15}$
6. $7\frac{3}{\frac{5}{3}}$
7. $6\frac{}{\frac{3}{8}}$
8. $\frac{41}{45}$
9. 27
10. 7

Activity 3

1. T
2. T
3. F
4. T
5. F
6. F
7. T
8. T
9. F
10. F

Activity 4

1. d
2. b
3. c
4. a
5. b

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