

Name **ANSWER KEY**

Unit 3- Adding and Subtracting Fractions (**STUDY GUIDE PART I**)

Fluency with Fractions:

<p>Fill in the missing number to make the fractions equivalent.</p> <p>1. $\frac{1}{5} = \frac{3}{15}$</p> <p>2. $\frac{2}{3} = \frac{6}{9}$</p> <p>3. $\frac{3}{4} = \frac{9}{12}$</p>	<p>5. Circle the fractions that are less than $\frac{1}{2}$.</p> <p>$\frac{7}{8}$ $\frac{2}{5}$ $\frac{4}{9}$ $\frac{10}{19}$ $\frac{5}{8}$</p>
<p>4. Circle one fraction that is not equivalent to the other fractions.</p> <p>$\frac{3}{4}$ $\frac{24}{42}$ $\frac{21}{28}$ $\frac{6}{8}$</p>	<p>6. Which fraction is closer to $\frac{1}{2}$?</p> <p>$\frac{5}{12}$ or $\frac{3}{4}$</p> <p>Explain: Each fraction is one piece from one half. $\frac{5}{12}$ is $\frac{1}{12}$ away, and $\frac{3}{4}$ is $\frac{1}{4}$ away. Since $\frac{1}{12}$ is $< \frac{1}{4}$, it is a smaller piece away from $\frac{1}{2}$. Therefore, $\frac{5}{12}$ is closer to $\frac{1}{2}$ than $\frac{3}{4}$.</p> <p>$\frac{6}{12} = \frac{1}{2}$ and $\frac{2}{4} = \frac{1}{2}$</p>

Change the following mixed numbers to improper fractions:

$$3 \frac{1}{2} = \mathbf{\frac{7}{2}}$$

$$1 \frac{2}{5} = \mathbf{\frac{7}{5}}$$

$$2 \frac{3}{4} = \mathbf{\frac{11}{4}}$$

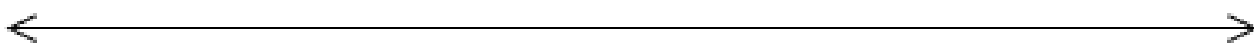
Computation: Write your answers in simplest form or as mixed numbers, if necessary.

7. $\frac{3}{4} + \frac{3}{4} = 1 \frac{1}{2}$	8. $\frac{5}{9} - \frac{3}{9} = \frac{2}{9}$	9. $2 - \frac{1}{4} = 1 \frac{3}{4}$
10. $\frac{5}{6} + \frac{1}{4} = 1 \frac{1}{12}$	11. $4 \frac{1}{8} + 3 \frac{1}{2} = 7 \frac{5}{8}$	12. $\frac{5}{6} - \frac{2}{3} = \frac{1}{6}$

13. Place each distance where it belongs on the number line below. Then solve the problem.

**Six star athletes had a contest to see who could run the furthest. The table below displays the data from their run.*

Derrick Henry $1 \frac{5}{8}$ miles - male	Ronda Rousey $2 \frac{1}{3}$ miles - female
Gabrielle Douglas 2 miles - female	Cameron Newton $1 \frac{1}{3}$ miles - male
Jessica Ennis $1 \frac{1}{2}$ miles - female	Venus Williams $1 \frac{2}{3}$ miles - female



1 $1 \frac{1}{8}$ $1 \frac{1}{3}$ $1 \frac{1}{2}$ $1 \frac{2}{3}$ $1 \frac{5}{8}$ 2 $2 \frac{1}{8}$ $2 \frac{1}{3}$ $2 \frac{1}{2}$ $2 \frac{2}{3}$ $2 \frac{5}{8}$ 3

a. What is the total distance run by the male athletes? $1 \frac{5}{8} + 1 \frac{1}{3} = 3 \frac{1}{6}$ miles

b. What is the difference between the longest and shortest distance? $2 \frac{1}{3} - 1 \frac{1}{3} = 1$ mile

c. What is the total distance run by all six athletes? **Hint: Add the whole numbers first, and then see what fractions you can add together to make a whole.*

Males: $3 \frac{1}{6}$ (see part a)

Females: $2 + 1 \frac{1}{2} + 2 \frac{1}{3} + 1 \frac{2}{3} = 7 \frac{1}{2}$

Total: $3 \frac{1}{6} + 7 \frac{1}{2} = 10 \frac{2}{3}$ miles

d. What is the difference between the number of miles the females ran compared to the males? **Hint: Use information from part C to solve this. Remember, difference means subtract!*
 $7\frac{1}{2} - 3\frac{1}{8} = 4\frac{1}{8}$ miles

Name _____

Unit 3- Adding and Subtracting Fractions (STUDY GUIDE PART II)

Adding and Subtracting Fractions with Like and Unlike Denominators: **You must use a model on a minimum of 2 problems.**

REMEMBER: It is better to over explain than under explain!

14. Whitney is knitting a multi-colored quilt. She has $\frac{3}{4}$ of a yard of orange fabric and $\frac{5}{8}$ of a yard of black fabric. A total of 2 yards of fabric is needed for the quilt. Does Whitney have enough fabric for the quilt?

Show your work.

**HINT: Before you can compare her amount to 2 yards, you need to find the total of what she has.*

Step 1: $\frac{3}{4} + \frac{5}{8} = 1\frac{3}{8}$ yards

Step 2: Compare the total you found in Step 1 to 2 yards.

ANSWER: She does NOT have enough, because $1\frac{3}{8} < 2$.

15. Cassidy jogged $\frac{6}{8}$ of a mile on Sunday and $\frac{1}{3}$ of a mile on Monday. Is the total distance Cassidy jogged on Sunday and Monday closest to $\frac{1}{2}$ of a mile or 1 whole mile?

Explain your thinking.

You do NOT have to add these together to answer this question. Use reasoning.

$\frac{6}{8}$ is already more than one half (it is equivalent to $\frac{3}{4}$). $\frac{3}{4}$ only needs $\frac{1}{4}$ to make a whole.

Since $\frac{1}{3}$ is greater than $\frac{1}{4}$, if you add $\frac{1}{3}$ to $\frac{3}{4}$, you will go over a whole.

ANSWER: Cassidy jogged closest to 1 whole mile.

16. The sixth grade science teachers borrowed $4\frac{3}{4}$ oz of Elmer's glue from the supply closet, but the project they were working on required $8\frac{1}{2}$ oz of glue. They borrowed another $3\frac{3}{8}$ oz from the front office. How much more glue do the sixth grade teachers need to complete the project?

**HINT: Before you can determine how much more glue they need, you need to find the total amount of glue they have.*

Step 1: $4\frac{3}{4} + 3\frac{3}{8} = 8\frac{1}{8}$ oz. of glue total

Step 2: $8\frac{1}{2} - 8\frac{1}{8} = \frac{3}{8}$ oz. of glue

ANSWER: $\frac{3}{8}$ oz. of glue

17. Ben weeded $\frac{1}{6}$ of the garden, and Jerry weeded some, too. When they were finished, $\frac{3}{4}$ of the garden still needed to be weeded. What fraction of the garden did Jerry weed?

NOTE: *Model done in class.

Step 1: First, find the total amount that is NOT what Jerry did. $\frac{1}{6} + \frac{3}{4} = \frac{11}{12}$

Step 2: Subtract that amount (from Step 1) from a whole. $\frac{12}{12} - \frac{11}{12} = \frac{1}{12}$

ANSWER: Jerry weeded $\frac{1}{12}$ of the garden.

18. Jon Jon used $3\frac{1}{2}$ kg of sand to melt the ice on his sidewalk. He then used another $4\frac{5}{8}$ kg on the driveway. If he originally bought 10 kg of sand, how much does he have left?

Step 1: See how much total sand he used. $3\frac{1}{2} + 4\frac{5}{8} = 8\frac{1}{8}$ kg. of sand

Step 2: Subtract the amount he used (from Step 1) from how much he has. $10 - 8\frac{1}{8} = 1\frac{7}{8}$

ANSWER: Jon Jon has $1\frac{7}{8}$ kg. of sand left.

19. Dawson says that $4\frac{1}{2} + 5\frac{7}{8}$ will be more than 9, but less than 10 since $4 + 5$ is 9. Is Dawson's reasoning correct? Prove him right or wrong.

ANSWER: Dawson is incorrect. He added the whole numbers correctly, but he thinks that the fractions won't make another whole. He is wrong because he does not understand that when you add two fractions, you can make another whole number or a mixed number. Just because you started with two parts of wholes, this doesn't mean you will still have less than a whole when you combine them. In this problem, when you add the two fractions, you make $\frac{11}{8}$, which is $\frac{3}{8}$ more than a whole. Therefore, the answer to the problem is $10\frac{3}{8}$.

20. John jogged $1\frac{1}{3}$ miles on Tuesday. Thursday, he jogged $3\frac{3}{5}$ miles, and on Saturday, he jogged $2\frac{1}{5}$ miles. How far did John jog altogether?

ANSWER: $1\frac{1}{3} + 3\frac{3}{5} + 2\frac{1}{5} = 7\frac{2}{15}$ miles