

# **Grade 10 Essential**

## **Mathematics**

UNIT X – REVIEW / PRIOR STUDIES

### **FRACTIONS**

This is a review of fractions from prior grades



## Lesson 1 Multiplication

Multiply the numerators.

$$\frac{1}{2} \times \frac{3}{5} \times \frac{3}{4} = \frac{1 \times 3 \times 3}{2 \times 5 \times 4} = \frac{9}{40}$$

Multiply the denominators.

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

$$\frac{4}{5} \times \frac{2}{3} \times \frac{1}{3} = \frac{4 \times 2 \times 1}{5 \times 3 \times 3} = \frac{8}{45}$$

Multiply.

	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>
1.	$\frac{3}{4} \times \frac{1}{5}$	$\frac{2}{3} \times \frac{4}{5}$	$\frac{7}{8} \times \frac{5}{6} \times \frac{1}{2}$	$\frac{3}{5} \times \frac{2}{7} \times \frac{1}{5}$

2.	$\frac{1}{2} \times \frac{1}{3}$	$\frac{4}{5} \times \frac{2}{7}$	$\frac{3}{8} \times \frac{3}{5} \times \frac{3}{4}$	$\frac{1}{2} \times \frac{1}{4} \times \frac{1}{3}$
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3.	$\frac{5}{8} \times \frac{5}{8}$	$\frac{6}{7} \times \frac{3}{5}$	$\frac{2}{3} \times \frac{1}{5} \times \frac{1}{7}$	$\frac{3}{7} \times \frac{1}{5} \times \frac{3}{4}$
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4.	$\frac{3}{8} \times \frac{5}{7}$	$\frac{5}{7} \times \frac{3}{8}$	$\frac{4}{5} \times \frac{4}{5} \times \frac{4}{5}$	$\frac{2}{3} \times \frac{2}{3} \times \frac{2}{3}$
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5.	$\frac{3}{5} \times \frac{2}{5}$	$\frac{7}{8} \times \frac{3}{10}$	$\frac{5}{6} \times \frac{5}{9} \times \frac{1}{2}$	$\frac{3}{5} \times \frac{2}{5} \times \frac{4}{5}$
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6.	$\frac{3}{5} \times \frac{1}{2}$	$\frac{5}{8} \times \frac{7}{9}$	$\frac{3}{8} \times \frac{5}{7} \times \frac{3}{4}$	$\frac{2}{3} \times \frac{4}{5} \times \frac{1}{7}$
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## Lesson 2 Greatest Common Factor

12 ←  $1 \times 12$   
 $2 \times 6$   
 $3 \times 4$

1, 2, 3, 4, 6, and 12, are factors of 12.

20 ←  $1 \times 20$   
 $2 \times 10$   
 $4 \times 5$

1, 2, 4, 5, 10, and 20, are factors of 20.

1, 2, and 4 are **common factors** of 12 and 20.  
 4 is the **greatest common factor** of 12 and 20.

List the factors of each number named below. Then list the common factors and the greatest common factor of each pair of numbers.

	<i>factors</i>	<i>common factor(s)</i>	<i>greatest common factor</i>
1.	4 _____ 6 _____	_____	_____
2.	10 _____ 12 _____	_____	_____
3.	16 _____ 24 _____	_____	_____
4.	9 _____ 16 _____	_____	_____
5.	18 _____ 20 _____	_____	_____
6.	25 _____ 24 _____	_____	_____
7.	48 _____ 36 _____	_____	_____

## Lesson 3 Simplest Form

A fraction is in simplest form when the greatest common factor of the numerator and denominator is 1.

Divide 8 and 12 by their greatest common factor.

$$\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$

The simplest form for  $\frac{8}{12}$  is  $\frac{2}{3}$ .

A mixed numeral is in simplest form when its fraction is in simplest form and names a number between 0 and 1.

Divide 10 and 15 by their greatest common factor.

$$8\frac{10}{15} = 8\frac{10 \div 5}{15 \div 5} = 8\frac{2}{3}$$

The simplest form for  $8\frac{10}{15}$  is \_\_\_\_.

Write each of the following in simplest form.

	<i>a</i>	<i>b</i>	<i>c</i>
1.	$\frac{6}{15}$	$\frac{12}{20}$	$\frac{21}{30}$
2.	$\frac{16}{36}$	$\frac{40}{42}$	$\frac{18}{36}$
3.	$2\frac{9}{15}$	$6\frac{18}{30}$	$8\frac{36}{54}$
4.	$\frac{10}{35}$	$3\frac{4}{18}$	$7\frac{18}{24}$
5.	$5\frac{18}{45}$	$\frac{30}{105}$	$\frac{36}{60}$

## Lesson 4 Simplifying Products

Study the two ways  $\frac{6}{7} \times \frac{3}{4}$  is found in simplest form.

$$\begin{aligned} \frac{6}{7} \times \frac{3}{4} &= \frac{6 \times 3}{7 \times 4} \\ &= \frac{18}{28} \\ &= \frac{18 \div 2}{28 \div 2} \\ &= \frac{9}{14} \end{aligned}$$

$$\begin{aligned} \frac{6}{7} \times \frac{3}{4} &= \frac{\overset{3}{\cancel{6}} \times 3}{7 \times \underset{2}{\cancel{4}}} \\ &= \frac{3 \times 3}{7 \times 2} \\ &= \frac{9}{14} \end{aligned}$$

Divide 6 (in the numerator) and 4 (in the denominator) by their greatest common factor, 2.

Write each answer in simplest form.

*a*

1.  $\frac{4}{5} \times \frac{1}{2}$

*b*

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

*c*

$\frac{3}{5} \times \frac{4}{9}$

*d*

$\frac{8}{9} \times \frac{7}{10}$

2.  $\frac{2}{3} \times \frac{5}{6}$

$\frac{7}{10} \times \frac{8}{9}$

$\frac{10}{11} \times \frac{7}{12}$

$\frac{5}{7} \times \frac{3}{10}$

3.  $\frac{7}{9} \times \frac{6}{11}$

$\frac{12}{13} \times \frac{3}{4}$

$\frac{10}{11} \times \frac{7}{15}$

$\frac{8}{9} \times \frac{5}{12}$

4.  $\frac{5}{8} \times \frac{2}{5}$

$\frac{9}{16} \times \frac{1}{6}$

$\frac{1}{2} \times \frac{8}{9}$

$\frac{4}{7} \times \frac{14}{15}$

5.  $\frac{3}{8} \times \frac{4}{5}$

$\frac{8}{9} \times \frac{6}{7}$

$\frac{4}{7} \times \frac{5}{6}$

$\frac{4}{15} \times \frac{12}{13}$

## Lesson 4 Simplifying Products

Study the two ways  $\frac{6}{7} \times \frac{3}{4}$  is found in simplest form.

$$\begin{aligned} \frac{6}{7} \times \frac{3}{4} &= \frac{6 \times 3}{7 \times 4} \\ &= \frac{18}{28} \\ &= \frac{18 \div 2}{28 \div 2} \\ &= \frac{9}{14} \end{aligned}$$

$$\begin{aligned} \frac{6}{7} \times \frac{3}{4} &= \frac{\overset{3}{\cancel{6}} \times 3}{7 \times \underset{2}{\cancel{4}}} \\ &= \frac{3 \times 3}{7 \times 2} \\ &= \frac{9}{14} \end{aligned}$$

Divide 6 (in the numerator) and 4 (in the denominator) by their greatest common factor, 2.

Write each answer in simplest form.

**1.**  $\frac{4}{5} \times \frac{1}{2}$

**b**  $\frac{3}{8} \times \frac{2}{3}$

**c**  $\frac{3}{5} \times \frac{4}{9}$

**d**  $\frac{8}{9} \times \frac{7}{10}$

**2.**  $\frac{2}{3} \times \frac{5}{6}$

$\frac{7}{10} \times \frac{8}{9}$

$\frac{10}{11} \times \frac{7}{12}$

$\frac{5}{7} \times \frac{3}{10}$

**3.**  $\frac{7}{9} \times \frac{6}{11}$

$\frac{12}{13} \times \frac{3}{4}$

$\frac{10}{11} \times \frac{7}{15}$

$\frac{8}{9} \times \frac{5}{12}$

**4.**  $\frac{5}{8} \times \frac{2}{5}$

$\frac{9}{16} \times \frac{1}{6}$

$\frac{1}{2} \times \frac{8}{9}$

$\frac{4}{7} \times \frac{14}{15}$

**5.**  $\frac{3}{8} \times \frac{4}{5}$

$\frac{8}{9} \times \frac{6}{7}$

$\frac{4}{7} \times \frac{5}{6}$

$\frac{4}{15} \times \frac{12}{13}$

## Lesson 5 Simplifying Products

Study how  $\frac{5}{6} \times \frac{9}{10} \times \frac{1}{7}$  is found in simplest form.

$$\frac{\overset{1}{5} \times 9 \times 1}{6 \times \underset{2}{10} \times 7}$$

Both numerator and denominator have been divided by \_\_\_\_.

$$\frac{\overset{1}{\cancel{5}} \times \overset{3}{\cancel{9}} \times 1}{\underset{2}{\cancel{6}} \times \underset{2}{\cancel{10}} \times 7}$$

Both numerator and denominator have been divided by \_\_\_\_.

$$\frac{\overset{1}{\cancel{5}} \times \overset{3}{\cancel{9}} \times 1}{\underset{2}{\cancel{6}} \times \underset{2}{\cancel{10}} \times 7} = \frac{1 \times 3 \times 1}{2 \times 2 \times 7}$$

$$= \frac{3}{28}$$

$$\frac{5}{6} \times \frac{9}{10} \times \frac{1}{7} = \underline{\hspace{2cm}}$$

Write each answer in simplest form.

**a**

1.  $\frac{3}{5} \times \frac{5}{6}$

**b**

$\frac{4}{9} \times \frac{3}{8}$

**c**

$\frac{7}{8} \times \frac{6}{7}$

**d**

$\frac{2}{3} \times \frac{3}{4} \times \frac{1}{5}$

2.  $\frac{9}{10} \times \frac{5}{6}$

$\frac{5}{8} \times \frac{4}{15}$

$\frac{10}{11} \times \frac{11}{12}$

$\frac{4}{5} \times \frac{3}{4} \times \frac{5}{6}$

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

$\frac{4}{5} \times \frac{5}{12}$

$\frac{3}{4} \times \frac{8}{9}$

$\frac{4}{7} \times \frac{2}{3} \times \frac{7}{8}$

4.  $\frac{4}{9} \times \frac{9}{10}$

$\frac{2}{3} \times \frac{9}{10}$

$\frac{3}{10} \times \frac{5}{6}$

$\frac{2}{5} \times \frac{3}{4} \times \frac{5}{6}$

5.  $\frac{5}{9} \times \frac{9}{10}$

$\frac{7}{8} \times \frac{2}{7}$

$\frac{3}{10} \times \frac{5}{9}$

$\frac{4}{7} \times \frac{7}{8} \times \frac{2}{3}$



# Lesson 6 Renaming Fractions and Mixed Numerals

An improper fraction has its numerator greater than its denominator.

Change  $3\frac{2}{5}$  to an improper fraction.

$$\begin{aligned}
 + \quad 3\frac{2}{5} &= \frac{(5 \times 3) + 2}{5} \\
 \times \quad &= \frac{15 + 2}{5} \\
 &= \frac{17}{5}
 \end{aligned}$$

Change  $\frac{22}{4}$  to a mixed numeral.

$\frac{22}{4}$  means  $22 \div 4$  or  $4 \overline{)22}$ .

$$\begin{array}{r}
 5\frac{2}{4} \\
 4 \overline{)22} \\
 \underline{20} \\
 2 \\
 \underline{2} \\
 0
 \end{array}$$

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

$$\frac{22}{4} = 5\frac{2}{4} \text{ or } 5\frac{1}{2}$$

You can think of every whole number as an improper fraction with a denominator of 1.

$2 = \frac{2}{1}$

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

$21 = \frac{21}{1}$

Change each of the following to an improper fraction.

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

$b$   
 $2\frac{1}{2}$

$c$   
 $4\frac{3}{5}$

$d$   
 $1\frac{3}{4}$

$e$   
8

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

$3\frac{5}{6}$

$5\frac{1}{3}$

12

$6\frac{7}{8}$

Change each of the following to a mixed numeral in simplest form.

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

$\frac{21}{5}$

$\frac{9}{6}$

$\frac{18}{8}$

$2\frac{9}{5}$

4.  $\frac{43}{8}$

$\frac{64}{10}$

$\frac{22}{4}$

$\frac{16}{12}$

$5\frac{15}{10}$

5.  $\frac{22}{3}$

$\frac{36}{7}$

$\frac{15}{6}$

$\frac{27}{4}$

$\frac{41}{8}$

## Lesson 7 Multiplication (mixed numerals)

$$\begin{aligned}
 6 \times 5\frac{3}{4} &= \frac{6}{1} \times \frac{23}{4} \\
 &= \frac{\overset{3}{\cancel{6}} \times 23}{1 \times \underset{2}{\cancel{4}}} \\
 &= \frac{69}{2} \\
 &= 34\frac{1}{2}
 \end{aligned}$$

Rename the numbers as improper fractions.

Divide the numerator and the denominator by common factors.

Multiply.

Write the product as a mixed numeral in simplest form.

$$\begin{aligned}
 2\frac{2}{3} \times 1\frac{1}{2} \times \frac{4}{5} &= \frac{8}{3} \times \frac{3}{2} \times \frac{4}{5} \\
 &= \frac{\overset{4}{\cancel{8}} \times \overset{1}{\cancel{3}} \times 4}{\underset{1}{\cancel{3}} \times \underset{1}{\cancel{2}} \times 5} \\
 &= \frac{4 \times 1 \times 4}{1 \times 1 \times 5} \\
 &= \frac{16}{5} \text{ or } 3\frac{1}{5}
 \end{aligned}$$

Write each answer in simplest form.

1.  $a$   
 $8 \times 2\frac{5}{6}$

$b$   
 $4\frac{2}{3} \times 9$

$c$   
 $3\frac{1}{6} \times 2 \times 9$

2.  $1\frac{2}{3} \times 1\frac{1}{5}$

$1\frac{2}{7} \times 2\frac{1}{3}$

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

3.  $1\frac{1}{9} \times \frac{3}{8}$

$\frac{5}{6} \times 1\frac{1}{8}$

$\frac{4}{5} \times 3\frac{1}{2} \times 2\frac{1}{2}$

4.  $3\frac{1}{3} \times 1\frac{1}{5}$

$2\frac{2}{5} \times \frac{5}{8}$

$2\frac{1}{3} \times \frac{3}{7} \times \frac{1}{2}$

5.  $1\frac{2}{3} \times 2\frac{2}{5}$

$\frac{1}{6} \times 3\frac{1}{3}$

$1\frac{1}{4} \times \frac{2}{3} \times 2\frac{1}{2}$

## Lesson 7 Problem Solving

Solve. Write each answer in simplest form.

1. Ava has  $1\frac{1}{2}$  sacks of flour. Each sack has a mass of 6 kg. How many kilograms of flour does Ava have? **1.**

Ava has \_\_\_\_\_ kg of flour.

2. Mr. DiMaggio had  $1\frac{3}{4}$  bags of nuts. Two thirds of this amount was used at a dinner party. How many bags of nuts were used? **2.**

\_\_\_\_\_ bags of nuts were used.

3. Alyson is writing an essay. She wrote  $2\frac{3}{4}$  pages in the first hour. At that rate, how many pages will she write in  $3\frac{3}{5}$  h? **3.**

She will write \_\_\_\_\_ pages.

4. In problem 3, how many pages will she write in 8 h? **4.**

She will write \_\_\_\_\_ pages.

5. Louis has 16 rookie hockey cards. Anne has  $2\frac{1}{4}$  times that many rookie cards. How many rookie cards does Anne have? **5.**

Anne has \_\_\_\_\_ rookie cards.

6. In a relay, each person runs  $5\frac{5}{6}$  laps around a track. There are 16 people on the relay team. How many laps are run in all? **6.**

\_\_\_\_\_ laps are run in all.

7.  $7\frac{2}{3}$  small oranges have a mass of 1 kg. How many oranges would have a mass of 36 kg? **7.**

\_\_\_\_\_ small oranges would have a mass of 36 kg.

8. Alex has  $3\frac{4}{5}$  full albums of stamps. John has  $3\frac{2}{3}$  times as many full albums of stamps. How many albums of stamps does John have? **8.**

John has \_\_\_\_\_ albums of stamps.

## Lesson 8 Reciprocals

If the product of two numbers is 1, the numbers are **reciprocals** of each other.

$$\frac{5}{8} \times \frac{8}{5} = 1, \text{ so } \begin{cases} \frac{5}{8} \text{ is the reciprocal of } \frac{8}{5}. \\ \frac{8}{5} \text{ is the reciprocal of } \frac{5}{8}. \end{cases}$$

reciprocals                  reciprocals                  reciprocals

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ \frac{4}{5} \times \frac{5}{4} = \frac{20}{20} \text{ or } 1 & 2 \times \frac{1}{2} = \frac{2}{2} \text{ or } 1 & 2\frac{1}{3} \times \frac{3}{7} = \frac{7}{3} \times \frac{3}{7} = \frac{21}{21} \text{ or } 1 \end{array}$$

Tell whether the fractions in each pair are reciprocals.  
Write *Yes* or *No*.

- |  |   |   |
|--|---|---|
| <i>a</i>                                 | <i>b</i>                                | <i>c</i>                                |
| 1. $\frac{3}{4}$ and $\frac{4}{3}$ _____ | $\frac{1}{5}$ and $\frac{5}{1}$ _____   | $2\frac{3}{4}$ and $2\frac{4}{3}$ _____ |
| 2. 7 and $\frac{7}{1}$ _____             | $3\frac{2}{5}$ and $\frac{5}{17}$ _____ | $\frac{9}{10}$ and $\frac{9}{10}$ _____ |

Write the reciprocal of each of the following.

- |                         |                      |                      |                      |                      |                        |
|-------------------------|----------------------|----------------------|----------------------|----------------------|------------------------|
| <i>a</i>                | <i>b</i>             | <i>c</i>             | <i>d</i>             | <i>e</i>             | <i>f</i>               |
| 3. $\frac{5}{6}$ _____  | $\frac{7}{8}$ _____  | $\frac{1}{3}$ _____  | 6 _____              | 4 _____              | 8 _____                |
| 4. $2\frac{1}{2}$ _____ | $3\frac{1}{3}$ _____ | $1\frac{1}{4}$ _____ | $\frac{4}{9}$ _____  | 5 _____              | $3\frac{1}{8}$ _____   |
| 5. $4\frac{2}{3}$ _____ | $\frac{1}{10}$ _____ | 12 _____             | $1\frac{3}{5}$ _____ | $\frac{7}{12}$ _____ | $2\frac{13}{16}$ _____ |

## Lesson 9 Division

To divide by a fraction, multiply by its reciprocal.

Multiply by  
the reciprocal.

$$\begin{aligned} \frac{3}{5} \div \frac{1}{2} &= \frac{3}{5} \times \frac{2}{1} \\ &= \frac{6}{5} \\ &= 1\frac{1}{5} \end{aligned}$$

Multiply by  
the reciprocal.

$$\begin{aligned} 1\frac{3}{5} \div 6 &= \frac{8}{5} \times \frac{1}{6} \\ &= \frac{4}{15} \end{aligned}$$

Write each answer in simplest form.

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

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

$\frac{4}{5} \div \frac{8}{15}$

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

2.  $\frac{7}{8} \div \frac{1}{2}$

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

$\frac{4}{5} \div \frac{1}{2}$

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

3.  $8 \div \frac{4}{5}$

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

$2\frac{2}{5} \div 8$

$8\frac{1}{3} \div 10$

4.  $5\frac{1}{4} \div \frac{9}{20}$

$5\frac{1}{2} \div \frac{1}{4}$

$7\frac{3}{4} \div \frac{3}{16}$

$9 \div 6$

5.  $10 \div \frac{2}{5}$

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

$8 \div 12$

$3\frac{9}{10} \div \frac{13}{15}$

## Lesson 10 Division (mixed numerals)

$$3\frac{3}{8} \div 1\frac{1}{2} = \frac{27}{8} \div \frac{3}{2}$$

Change  $3\frac{3}{8}$  and  $1\frac{1}{2}$  to improper fractions.

$$= \frac{27}{8} \times \frac{2}{3}$$

Multiply by the reciprocal of  $\frac{3}{2}$ .

$$= \frac{9}{4} \text{ or } 2\frac{1}{4}$$

Write  $\frac{9}{4}$  as a mixed numeral in simplest form.

Write each answer in simplest form.

1.  $\frac{7}{10} \div \frac{14}{15}$

$2\frac{2}{3} \div \frac{2}{3}$

$\frac{2}{3} \div 2\frac{2}{3}$

$5 \div 1\frac{1}{4}$

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

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

$1\frac{2}{5} \div 1\frac{2}{7}$

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

3.  $\frac{3}{5} \div 1\frac{2}{7}$

$1\frac{1}{8} \div \frac{5}{6}$

$1\frac{3}{7} \div \frac{5}{7}$

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

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

$1\frac{7}{8} \div 1\frac{1}{4}$

$1\frac{5}{12} \div 2\frac{2}{3}$

$5\frac{3}{5} \div 2\frac{1}{10}$

## Lesson 10 Problem Solving

Solve. Write each answer in simplest form.

1. Sean's pool has a leak. It is losing 1 L every  $\frac{1}{20}$  h. How much water would the pool lose in  $\frac{3}{4}$  h?

It would lose \_\_\_\_\_ L of water.

2. In problem 1, how much water would the pool lose in  $2\frac{3}{4}$  h?

It would lose \_\_\_\_\_ L of water.

3. Mr. Cepuran worked  $6\frac{3}{4}$  h giving piano lessons today. Each lesson was  $\frac{3}{4}$  h long. How many lessons did he give today?

He gave \_\_\_\_\_ lessons.

4. Ada, Beth, and Cathy took turns painting the kitchen. They finished in  $5\frac{1}{4}$  h. If each girl spent the same amount of time painting, how long did each girl paint?

Each girl painted for \_\_\_\_\_ h.

5. The girls in problem 4 and a few friends painted the garage next. It took them  $7\frac{7}{8}$  h, and they each painted for  $1\frac{5}{16}$  h. How many people painted the garage?

\_\_\_\_\_ people painted the garage.

6. Allen took  $1\frac{7}{10}$  h to type  $25\frac{1}{2}$  pages. How many pages can he type per hour?

He can type \_\_\_\_\_ pages per hour.

7. Twenty bags of soil are to be placed in containers. Each container will hold  $3\frac{3}{4}$  bags of soil. How many full containers will there be? How much of another container will be filled?

\_\_\_\_\_ containers will be filled.

\_\_\_\_\_ of another container will be filled.

# Lesson 11 Addition and Subtraction

Study how to add or subtract when the denominators are the same.

<p style="text-align: center;">Add the numerators.</p> $\frac{2}{9} + \frac{5}{9} + \frac{8}{9} = \frac{2+5+8}{9}$ $= \frac{15}{9}$ <p style="text-align: center;">Use the same denominator.</p> $= 1\frac{2}{3}$		<p style="text-align: center;">Subtract the numerators.</p> $\frac{7}{8} - \frac{3}{8} = \frac{7-3}{8}$ $= \frac{4}{8}$ <p style="text-align: center;">Use the same denominator.</p> $= \frac{1}{2}$	
$\begin{array}{r} \frac{2}{9} \\ \frac{5}{9} \\ + \frac{8}{9} \\ \hline \frac{15}{9} \text{ or } 1\frac{2}{3} \end{array}$		$\begin{array}{r} \frac{7}{8} \\ - \frac{3}{8} \\ \hline \frac{4}{8} \\ \text{or } \frac{1}{2} \end{array}$	

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Write each answer in simplest form.

- |    | <i>a</i>                                      | <i>b</i>                                    | <i>c</i>                                      | <i>d</i>                                      | <i>e</i>                                      | <i>f</i>                                       |
|----|---|---|---|---|---|--|
| 1. | $\frac{3}{5}$<br>$+$ $\frac{1}{5}$<br><hr/>   | $\frac{7}{8}$<br>$+$ $\frac{6}{8}$<br><hr/> | $\frac{3}{4}$<br>$+$ $\frac{3}{4}$<br><hr/>   | $\frac{4}{5}$<br>$-$ $\frac{3}{5}$<br><hr/>   | $\frac{5}{8}$<br>$-$ $\frac{2}{8}$<br><hr/>   | $\frac{3}{8}$<br>$-$ $\frac{1}{8}$<br><hr/>    |
| 2. | $\frac{9}{10}$<br>$-$ $\frac{1}{10}$<br><hr/> | $\frac{3}{4}$<br>$-$ $\frac{1}{4}$<br><hr/> | $\frac{7}{8}$<br>$-$ $\frac{1}{8}$<br><hr/>   | $\frac{7}{12}$<br>$-$ $\frac{5}{12}$<br><hr/> | $\frac{5}{6}$<br>$-$ $\frac{3}{6}$<br><hr/>   | $\frac{7}{10}$<br>$-$ $\frac{7}{10}$<br><hr/>  |
| 3. | $\frac{1}{8}$<br>$+$ $\frac{3}{8}$<br><hr/>   | $\frac{2}{7}$<br>$+$ $\frac{4}{7}$<br><hr/> | $\frac{7}{10}$<br>$+$ $\frac{9}{10}$<br><hr/> | $\frac{4}{15}$<br>$+$ $\frac{7}{15}$<br><hr/> | $\frac{7}{10}$<br>$+$ $\frac{9}{10}$<br><hr/> | $\frac{5}{12}$<br>$+$ $\frac{11}{12}$<br><hr/> |



## Lesson 11 Problem Solving

Solve. Write each answer in simplest form.

- |   |                 |
|---|-----------------|
| <p>1. Lindsay took <math>\frac{3}{10}</math> h to solve a puzzle. Chelsea took <math>\frac{9}{10}</math> h to solve a different puzzle. How much time did the two girls spend on the puzzles in all?</p> <p>They spent _____ h on the puzzles.</p>  | <p>1.</p> <hr/> |
| <p>2. In problem 1, how much longer did Chelsea spend on her puzzle than Lindsay spent on hers?</p> <p>Chelsea spent _____ h longer on her puzzle.</p>  | <p>2.</p> <hr/> |
| <p>3. Glass A is <math>\frac{1}{8}</math> full, glass B is <math>\frac{3}{8}</math> full, and glass C is <math>\frac{5}{8}</math> full. How many full glasses are there altogether?</p> <p>There are _____ full glasses.</p>                        | <p>3.</p> <hr/> |
| <p>4. In problem 3, how much more full is glass C than glass A?</p> <p>Glass C is _____ more full.</p>  | <p>4.</p> <hr/> |
| <p>5. In problem 3, how much more full is glass C than glass B?</p> <p>Glass C is _____ more full.</p>  | <p>5.</p> <hr/> |
| <p>6. Grant spent <math>\frac{3}{12}</math> h eating, <math>\frac{11}{12}</math> h watching TV, and <math>\frac{5}{12}</math> h reading. How much longer did Grant spend reading than eating?</p> <p>He spent _____ h more reading than eating.</p> | <p>6.</p> <hr/> |
| <p>7. In problem 6, how much longer did Grant spend watching TV than reading?</p> <p>He spent _____ h more watching TV than reading.</p>  | <p>7.</p> <hr/> |
| <p>8. In problem 6, how much time did Grant spend in all three activities?</p> <p>He spent _____ h.</p>   | <p>8.</p> <hr/> |

# Lesson 12 Equivalent Fractions

You can rename a fraction by multiplying the numerator and the denominator by the same number.

$$\begin{aligned} \frac{3}{4} &= \frac{\square}{20} \\ \frac{3}{4} &= \frac{3 \times 5}{4 \times 5} \\ &= \frac{15}{20} \end{aligned}$$

Choose 5 so the new denominator is 20.

$$\begin{aligned} 4\frac{2}{5} &= 4\frac{\square}{15} \\ 4\frac{2}{5} &= 4\frac{2 \times 3}{5 \times 3} \\ &= 4\frac{6}{15} \end{aligned}$$

Choose 3 so the new denominator is 15.

Rename.

*a*

1.  $\frac{1}{2} = \frac{\square}{16}$

*b*

$\frac{3}{4} = \frac{\square}{12}$

*c*

$\frac{3}{5} = \frac{\square}{15}$

2.  $\frac{4}{5} = \frac{\square}{10}$

$\frac{7}{9} = \frac{\square}{45}$

$\frac{5}{12} = \frac{\square}{36}$

3.  $\frac{7}{8} = \frac{\square}{24}$

$\frac{1}{6} = \frac{\square}{30}$

$\frac{5}{12} = \frac{\square}{60}$

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

$2\frac{5}{8} = 2\frac{\square}{40}$

$4\frac{1}{4} = 4\frac{\square}{8}$

5.  $3\frac{8}{9} = 3\frac{\square}{18}$

$6\frac{7}{10} = 6\frac{\square}{60}$

$7\frac{5}{6} = 7\frac{\square}{24}$

# Lesson 13 Addition and Subtraction

To add or subtract when the denominators are different, rename the fractions so the denominators are the same.

The denominators are 4 and 5.  
Since  $4 \times 5 = 20$ , rename each fraction with a denominator of 20.

$$\begin{array}{r} \frac{3}{4} \rightarrow \frac{15}{20} \\ + \frac{3}{5} \rightarrow + \frac{12}{20} \\ \hline \frac{27}{20} = 1 \frac{7}{20} \end{array}$$

$$\begin{array}{r} \frac{2}{5} \rightarrow \frac{8}{20} \\ - \frac{1}{4} \rightarrow - \frac{5}{20} \\ \hline \frac{3}{20} \end{array}$$

The denominators are 2 and 3.  
Since  $2 \times 3 = 6$ , rename each number with a denominator of 6.

$$\begin{array}{r} 3 \frac{2}{3} \rightarrow 3 \frac{4}{6} \\ + 1 \frac{1}{2} \rightarrow + 1 \frac{3}{6} \\ \hline 4 \frac{7}{6} = 5 \frac{1}{6} \end{array}$$

$$\begin{array}{r} 5 \frac{1}{2} \rightarrow 5 \frac{3}{6} \\ - 2 \frac{1}{3} \rightarrow - 2 \frac{2}{6} \\ \hline 3 \frac{1}{6} \end{array}$$

Write answers in simplest form.

Write each answer in simplest form.

1. 
$$\begin{array}{r} a \\ \frac{3}{5} \\ + \frac{2}{3} \\ \hline \end{array}$$

b 
$$\begin{array}{r} \frac{3}{4} \\ + \frac{1}{3} \\ \hline \end{array}$$

c 
$$\begin{array}{r} \frac{7}{8} \\ + \frac{1}{3} \\ \hline \end{array}$$

d 
$$\begin{array}{r} \frac{1}{2} \\ + \frac{2}{3} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} \frac{1}{2} \\ - \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{2}{3} \\ - \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{8} \\ - \frac{2}{3} \\ \hline \end{array}$$

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

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

$$\begin{array}{r} 3 \frac{5}{8} \\ + 2 \frac{4}{5} \\ \hline \end{array}$$

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

$$\begin{array}{r} 5 \frac{2}{3} \\ + 2 \frac{3}{10} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 3 \frac{2}{3} \\ - 1 \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 5 \frac{1}{5} \\ - 2 \frac{1}{6} \\ \hline \end{array}$$

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

$$\begin{array}{r} 7 \frac{4}{5} \\ - 6 \frac{7}{12} \\ \hline \end{array}$$

# Lesson 14 Addition and Subtraction

When one denominator is a factor of the other, use the greater denominator as the common denominator.

2 is a factor of 10, so use 10 as the common denominator.

$$\begin{array}{r} \frac{7}{10} \\ + \frac{1}{2} \\ \hline \end{array} \rightarrow \begin{array}{r} \frac{7}{10} \\ + \frac{5}{10} \\ \hline \frac{12}{10} = 1\frac{1}{5} \end{array} \quad \begin{array}{r} 3\frac{1}{2} \\ + 1\frac{3}{10} \\ \hline \end{array} \rightarrow \begin{array}{r} 3\frac{5}{10} \\ + 1\frac{3}{10} \\ \hline 4\frac{8}{10} = 4\frac{4}{5} \end{array}$$

3 is a factor of 6, so use 6 as the common denominator.

$$\begin{array}{r} \frac{2}{3} \\ - \frac{1}{6} \\ \hline \end{array} \rightarrow \begin{array}{r} \frac{4}{6} \\ - \frac{1}{6} \\ \hline \frac{3}{6} = \frac{1}{2} \end{array} \quad \begin{array}{r} 4\frac{5}{6} \\ - 1\frac{2}{3} \\ \hline \end{array} \rightarrow \begin{array}{r} 4\frac{5}{6} \\ - 1\frac{4}{6} \\ \hline 3\frac{1}{6} \end{array}$$

Write each answer in simplest form.

- |    | <i>a</i>                                    | <i>b</i>                                     | <i>c</i>                                     | <i>d</i>                                     |
|----|---|--|--|--|
| 1. | $\frac{1}{2}$<br>$+\frac{3}{4}$<br><hr/>    | $\frac{7}{8}$<br>$+\frac{3}{4}$<br><hr/>     | $\frac{8}{9}$<br>$+\frac{1}{3}$<br><hr/>     | $\frac{2}{3}$<br>$+\frac{1}{12}$<br><hr/>    |
| 2. | $3\frac{2}{5}$<br>$+1\frac{7}{20}$<br><hr/> | $6\frac{11}{16}$<br>$+3\frac{1}{2}$<br><hr/> | $+7\frac{7}{24}$<br>$+4\frac{5}{6}$<br><hr/> | $5\frac{1}{4}$<br>$+2\frac{5}{12}$<br><hr/>  |
| 3. | $\frac{9}{10}$<br>$-\frac{1}{2}$<br><hr/>   | $\frac{5}{6}$<br>$-\frac{1}{3}$<br><hr/>     | $\frac{7}{8}$<br>$-\frac{1}{2}$<br><hr/>     | $\frac{3}{4}$<br>$-\frac{7}{16}$<br><hr/>    |
| 4. | $2\frac{5}{6}$<br>$-1\frac{2}{3}$<br><hr/>  | $6\frac{5}{8}$<br>$-3\frac{1}{4}$<br><hr/>   | $5\frac{4}{5}$<br>$-2\frac{9}{20}$<br><hr/>  | $9\frac{11}{24}$<br>$-7\frac{3}{8}$<br><hr/> |

# Lesson 14 Problem Solving

## Stock Market Report for McTavish Dog Supplies (changes given in dollars)

Monday	Tuesday	Wednesday	Thursday	Friday
up $\frac{7}{8}$	up $\frac{3}{4}$	up $1\frac{1}{2}$	up $2\frac{7}{8}$	



Solve. Write each answer in simplest form.

1. How much greater was Monday's gain than Tuesday's?

Monday's gain was \_\_\_\_\_ dollars greater.

2. What was the combined gain for Monday and Tuesday?

The combined gain was \_\_\_\_\_ dollars.

3. What was the combined gain for Wednesday and Thursday?

The combined gain was \_\_\_\_\_ dollars.

4. The price before trading Monday was  $23\frac{5}{8}$  dollars. What was the price after Monday's trading?

The price was \_\_\_\_\_ dollars.

5. The price after Thursday's trading was  $29\frac{5}{8}$  dollars. The price after Friday's trading was  $26\frac{1}{2}$  dollars. How much did the stock go down on Friday?

It went down \_\_\_\_\_ dollars.

6. A recipe for punch calls for  $\frac{3}{4}$  L orange juice and  $\frac{2}{3}$  L cranberry juice. How much more orange juice does the recipe call for than cranberry juice?

The recipe calls for \_\_\_\_\_ L more orange juice.

7.  $2\frac{1}{2}$  L of water is poured into a jug with a mass of  $2\frac{9}{10}$  kg. The water has a mass of  $2\frac{1}{2}$  kg. What is the combined mass of the water and the jug?

The combined mass is \_\_\_\_\_ kg.

## Lesson 15 Addition and Subtraction

The denominators 4 and 10 have a common factor of 2. Use  $(4 \times 10) \div 2$  or 20 as the common denominator.

$$\begin{array}{r} \frac{3}{4} \rightarrow \frac{15}{20} \\ + \frac{7}{10} \rightarrow + \frac{14}{20} \\ \hline \frac{29}{20} = 1 \frac{9}{20} \end{array}$$

$$\begin{array}{r} 2 \frac{9}{10} \rightarrow 2 \frac{18}{20} \\ + 3 \frac{1}{4} \rightarrow + 3 \frac{5}{20} \\ \hline 5 \frac{23}{20} = 6 \frac{3}{20} \end{array}$$

The denominators 8 and 12 have a common factor of 4. Use  $(8 \times 12) \div 4$  or 24 as the common denominator.

$$\begin{array}{r} \frac{7}{8} \rightarrow \frac{21}{24} \\ - \frac{5}{12} \rightarrow - \frac{10}{24} \\ \hline \frac{11}{24} \end{array}$$

$$\begin{array}{r} 6 \frac{11}{12} \rightarrow 6 \frac{22}{24} \\ - 2 \frac{5}{8} \rightarrow - 2 \frac{15}{24} \\ \hline 4 \frac{7}{24} \end{array}$$

Write each answer in simplest form.

**1.**

	<i>a</i>		<i>b</i>
	$\frac{1}{6}$		$\frac{3}{4}$
	$+ \frac{3}{8}$		$+ \frac{1}{6}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

	<i>c</i>		<i>d</i>
	$\frac{3}{10}$		$\frac{5}{6}$
	$+ \frac{4}{15}$		$+ \frac{4}{9}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

**2.**

	$1 \frac{3}{4}$		$8 \frac{5}{6}$
	$+ 1 \frac{3}{10}$		$+ 4 \frac{7}{10}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

	$3 \frac{7}{15}$		$4 \frac{11}{12}$
	$+ 2 \frac{1}{6}$		$+ 5 \frac{8}{9}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

**3.**

	$\frac{1}{4}$		$\frac{13}{25}$
	$- \frac{1}{6}$		$- \frac{7}{15}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

	$\frac{8}{9}$		$\frac{7}{12}$
	$- \frac{5}{6}$		$- \frac{3}{16}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

**4.**

	$2 \frac{5}{6}$		$8 \frac{17}{20}$
	$- 1 \frac{1}{4}$		$- 2 \frac{5}{12}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

	$6 \frac{11}{15}$		$9 \frac{1}{8}$
	$- 3 \frac{7}{10}$		$- 5 \frac{1}{10}$
	<hr style="width: 50%; margin: 0 auto;"/>		<hr style="width: 50%; margin: 0 auto;"/>

## Lesson 15 Problem Solving

Solve. Express each answer in simplest form.

1. Matthew worked  $\frac{5}{6}$  h on Monday,  $\frac{3}{4}$  h on Tuesday, and  $\frac{9}{10}$  h on Wednesday. How many hours did he work on Monday and Tuesday?

He worked \_\_\_\_\_ h on Monday and Tuesday.

2. In problem 1, did Matthew work longer on Monday or Wednesday? How much longer did he work on that day?

He worked longer on \_\_\_\_\_.

He worked \_\_\_\_\_ h longer.

3. In problem 1, how many hours did Matthew work on Tuesday and Wednesday?

He worked \_\_\_\_\_ h on these two days.

4. June solved the first math problem in  $\frac{9}{16}$  min, the second problem in  $1\frac{7}{8}$  min, and the last problem in  $1\frac{3}{4}$  min. How long did it take her to solve the first and third problems?

It took her \_\_\_\_\_ min to solve the first and third problems.

5. In problem 4, which problem took June longer to solve, the second problem or the third problem? How much longer did it take?

The \_\_\_\_\_ problem took her longer.

It took her \_\_\_\_\_ min longer.

6. On a test, Brenda worked  $\frac{7}{30}$  h, Emma worked  $\frac{7}{20}$  h, and Laura worked  $\frac{7}{15}$  h. Which girl worked the least amount of time? How long did the other two girls work on the test?

\_\_\_\_\_ worked the least amount of time.

The other girls worked \_\_\_\_\_ h.

7. In problem 6, how long did Brenda and Emma work on the test?

They worked \_\_\_\_\_ h.

1.

2.

3.

4.

5.

6.

7.

# Lesson 16 Subtraction (renaming)

To subtract, rename 6 as  $5\frac{4}{4}$ .

$$\begin{array}{r}
 6 \\
 -1\frac{3}{4} \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 5\frac{4}{4} \\
 -1\frac{3}{4} \\
 \hline
 4\frac{1}{4}
 \end{array}$$

$$\begin{aligned}
 6 &= 5 + 1 \\
 &= 5 + \frac{4}{4} \\
 &= 5\frac{4}{4}
 \end{aligned}$$

To subtract, rename  $4\frac{5}{15}$  as  $3\frac{20}{15}$ .

$$\begin{array}{r}
 4\frac{1}{3} \\
 -1\frac{3}{5} \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 4\frac{5}{15} \\
 -1\frac{9}{15} \\
 \hline
 \end{array}
 \rightarrow
 \begin{array}{r}
 3\frac{20}{15} \\
 -1\frac{9}{15} \\
 \hline
 2\frac{11}{15}
 \end{array}$$

$$\begin{aligned}
 4\frac{5}{15} &= 3 + 1 + \frac{5}{15} \\
 &= 3 + \frac{15}{15} + \frac{5}{15} \\
 &= 3\frac{20}{15}
 \end{aligned}$$

CHAPTER  
2

Write each answer in simplest form.

- |    | a  | b  | c   | d  |
|----|--|--|---|--|
| 1. | $  \begin{array}{r}  7 \\  -\frac{7}{8} \\  \hline  \end{array}  $             | $  \begin{array}{r}  9 \\  -\frac{3}{10} \\  \hline  \end{array}  $              | $  \begin{array}{r}  6 \\  -3\frac{1}{2} \\  \hline  \end{array}  $             | $  \begin{array}{r}  4\frac{2}{7} \\  -2\frac{6}{7} \\  \hline  \end{array}  $ |
| 2. | $  \begin{array}{r}  4\frac{1}{4} \\  -2\frac{1}{2} \\  \hline  \end{array}  $ | $  \begin{array}{r}  4\frac{2}{3} \\  -1\frac{4}{5} \\  \hline  \end{array}  $   | $  \begin{array}{r}  6\frac{1}{2} \\  -1\frac{3}{8} \\  \hline  \end{array}  $  | $  \begin{array}{r}  1\frac{1}{3} \\  -\frac{1}{2} \\  \hline  \end{array}  $  |
| 3. | $  \begin{array}{r}  2 \\  -\frac{3}{4} \\  \hline  \end{array}  $             | $  \begin{array}{r}  3\frac{1}{2} \\  -1\frac{2}{3} \\  \hline  \end{array}  $   | $  \begin{array}{r}  6 \\  -1\frac{5}{6} \\  \hline  \end{array}  $             | $  \begin{array}{r}  7\frac{1}{8} \\  -4\frac{5}{6} \\  \hline  \end{array}  $ |
| 4. | $  \begin{array}{r}  5\frac{2}{3} \\  -\frac{5}{6} \\  \hline  \end{array}  $  | $  \begin{array}{r}  4\frac{2}{15} \\  -3\frac{7}{10} \\  \hline  \end{array}  $ | $  \begin{array}{r}  7\frac{5}{9} \\  -4\frac{7}{12} \\  \hline  \end{array}  $ | $  \begin{array}{r}  8\frac{3}{4} \\  -3\frac{4}{5} \\  \hline  \end{array}  $ |



## Lesson 16 Problem Solving

Rehearsal Schedule	
Day	Time
Monday	2 h
Tuesday	$1\frac{5}{6}$ h
Wednesday	$\frac{3}{4}$ h
Thursday	$1\frac{3}{5}$ h
Friday	



Solve each problem.

1. How many hours less did the group practise on Wednesday than on Monday?

They practised \_\_\_\_\_ h less on Wednesday.

2. How much longer did they practise on Tuesday than on Thursday?

They practised \_\_\_\_\_ h longer on Tuesday.

3. Find the combined practice time for Wednesday and Thursday.

The combined practice time was \_\_\_\_\_ h.

4. Find the average time they practised on Wednesday and Thursday.

The average time was \_\_\_\_\_ h.

5. On Friday they practised twice as long as they practised on Wednesday. How long did they practise on Friday?

They practised \_\_\_\_\_ h on Friday.

1.

2.

3.

4.

5.

# CHAPTER 2 PRACTICE TEST

## Operations Involving Fractions

Write each answer in simplest form.

$$1. \quad a \quad \frac{2}{3} \times \frac{2}{3}$$

$$b \quad \frac{4}{5} \times \frac{5}{6}$$

$$c \quad \frac{3}{10} \times \frac{8}{9}$$

$$d \quad \frac{1}{2} \times \frac{2}{3} \times \frac{3}{4}$$

$$2. \quad 12 \times 7 \frac{1}{2}$$

$$1 \frac{4}{5} \times 3 \frac{1}{3}$$

$$\frac{8}{9} \times 7 \frac{1}{2}$$

$$4 \times 3 \frac{1}{2} \times 2 \frac{3}{4}$$

$$3. \quad \frac{4}{5} \div \frac{5}{6}$$

$$\frac{7}{8} \div \frac{3}{10}$$

$$12 \div 1 \frac{1}{8}$$

$$4 \frac{2}{3} \div 1 \frac{1}{6}$$

$$4. \quad \begin{array}{r} \frac{2}{5} \\ + \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{7}{9} \\ + \frac{2}{3} \\ \hline \end{array}$$

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

$$\begin{array}{r} \frac{5}{6} \\ + 2 \frac{3}{10} \\ \hline \end{array}$$

$$5. \quad \begin{array}{r} \frac{9}{10} \\ - \frac{3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} \frac{6}{7} \\ - \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ - 2 \frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 3 \frac{2}{5} \\ - 1 \frac{7}{10} \\ \hline \end{array}$$