Dear Families,

In planning ahead in case of a school closing, the seventh-grade math department will be posting assignments on your child's ***DIGITS*** account to complete. If your child is experiencing any difficulty, we encourage them to use the "Help Me Solve This" or "View an Example" features to help them. They can also access their online textbook through ***DIGITS*** and go through the lesson for that specific topic which has interactive videos with examples and answers. We will be checking our emails periodically to help with any issues that may arise.

If your child has completed all the assigned work and feel they need more practice they are encouraged to go to the intervention folder under their online textbook to practice concepts.

Upon returning to school, we will work with students on any topic that they had struggled with.

Stay Healthy,

7th Grade Math Department

Name _____ Class _____ Date _____

Practice 1-1 Equivalent Ratios

1. In a bouquet of flowers, there are 7 daisies and 17 roses. Write the ratio of daisies to roses in three different ways.

2. A jug of juice has 6 cups of pineapple juice and 5 cups of orange juice. Write the ratio of number of cups of pineapple juice to total number of cups of juice in three different ways.

3. Which ratio is equivalent to $\frac{4}{7}$ with greater terms?

   ○ A. $\frac{7}{10}$ ○ C. $\frac{12}{21}$

   ○ B. $\frac{21}{12}$ ○ D. $\frac{7}{4}$

4. The attendant at a parking lot compared the number of hybrid vehicles to the total number of vehicles in the lot over a weekend. The ratios for the three days were equivalent. Complete the table.

Day	Hybrids	Total
Fri.	5	8
Sat.	_____	56
Sun.	45	_____

5. Write the ratio 6 ft to 4 yd as a fraction in simplest form.

ANSWER KEY Practice 1-1: Equivalent Ratios

1. 7 to 17, 7 : 17, and $\frac{7}{17}$
2. 6 to 11, 6 : 11, and $\frac{6}{11}$
3. C
4. 35
   72
5. $\frac{1}{2}$

Practice 1-2

Unit Rates

1. An airplane on autopilot took 5 hours to travel 3,475 kilometers. What is the unit rate for kilometers per hour?

2. In a week, 12 hens laid 48 eggs. What is the unit rate for eggs per hen?

3. A package of 5 pairs of insulated gloves costs $29.45. What is the unit price of the pairs of gloves?

4. You want to buy some rice. A 7-ounce package costs $2.59. A 12-ounce package costs $4.56. An 18-ounce package costs $6.30. Which package is the best buy?

5. Population density is the number of people per unit of area. The population density of a certain region is 60 people per square kilometer. If the region covers 23 square kilometers, what is the population of the region?

ANSWER KEY

Practice 1-2: Unit Rates

1. 695 km/hr
2. 4 eggs/hen
3. $5.89
4. The 18-oz package of rice is the best buy.
5. 1,380 people

Practice 1-3

Ratios with Fractions

1. Write the ratio $\frac{2}{3}$ to 8 as a fraction in simplest form.
2. A recipe includes 8 cups of flour and $\frac{2}{3}$ cup of sugar. Write the ratio of the amount of flour to the amount of sugar as a fraction in simplest form.
3. Write the ratio $\frac{\frac{4}{9}}{\frac{5}{9}}$ in simplest form.
4. Write the ratio $\frac{\frac{1}{7}\text{ yd}}{\frac{3}{5}\text{ yd}}$ in simplest form.
5. You mix $3\frac{1}{2}$ quarts of juice with $5\frac{1}{4}$ quarts of ginger ale to make fruit punch. What is the ratio of the amount of juice to the amount of ginger ale in simplest form?

ANSWER KEY

Practice 1-3: Ratios with Fractions

1. $\frac{1}{12}$
2. 12
3. $\frac{4}{5}$
4. $\frac{5}{21}$
5. $\frac{2}{3}$

Practice 1-4

Unit Rates with Fractions

1. Harry is bundling magazines to recycle. He notices that 4 magazines weigh $\frac{3}{8}$ pound in all and that the magazines all weigh the same amount. What is the unit rate for pounds per magazine?

2. Leo reads 13 pages in $\frac{1}{3}$ hour.
   a) What is the unit rate for pages per hour?
   b) What is the unit rate for hours per page?

3. Write the rate $\frac{\frac{1}{7}\text{ inch}}{\frac{1}{14}\text{ minute}}$ as a unit rate.

4. A bicyclist rides $\frac{1}{5}$ mile in $\frac{1}{65}$ hour. Write this rate as a unit rate.

5. Yesterday, Grace drove $38\frac{1}{2}$ miles. She used $1\frac{1}{4}$ gallons of gasoline. What is the unit rate for miles per gallon?

ANSWER KEY

Practice 1-4: Unit Rates with Fractions

1. $\frac{3}{32}$
2. a) 39 pages/hr
   b) $\frac{1}{39}$ hr/page
3. 2 in./min
4. 13 mi/hr
5. $30\frac{4}{5}$ mi/gal

Practice 2-1

Proportional Relationships and Tables

1. The table shows a proportional relationship between x and y. Complete the table.

x	3	4	5	6
y	12	16	20	24
Ratio $\frac{y}{x}$	_____	_____	$\frac{20}{5} = \frac{4}{1}$	_____

2. The amount of time Gareth spends studying and his test scores have a proportional relationship. Complete the table.

Test Scores			
Hours Studying	2	3	4
Test Score	46	69	92
Ratio $\frac{\text{Test Score}}{\text{Hours Studying}}$	$\frac{46}{2} = \frac{23}{1}$	_____	_____

3. Decide whether the table shows a proportional relationship between x and y.

x	y
5	25
6	30
7	35
8	40

4. Decide whether the table shows a proportional relationship between x and y.

x	2	4	7	10
y	4	16	49	100

5. The amount of seed needed for a landscaper to cover a lawn is shown in the table. Decide if the relationship between the amount of seed and the area it covers is proportional.

Lawn Seed	
Seed (oz)	Area Covered (ft^2)
1	16
2	32
3	48
4	64

ANSWER KEY

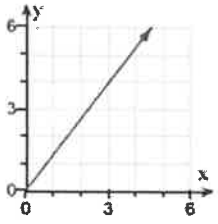
Practice 2-1: Proportional Relationships and Tables

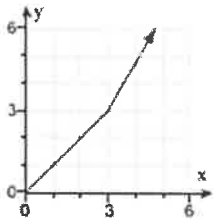
1. $\frac{4}{1}, \frac{4}{1}, \frac{4}{1}$
2. $\frac{23}{1}, \frac{23}{1}$
3. does
4. does not
5. is proportional

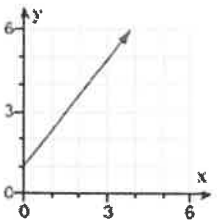
Practice 2-2

Proportional Relationships and Graphs

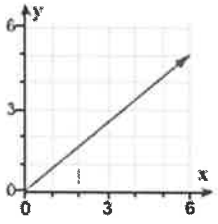
1. Which of the graphs shows a proportional relationship?

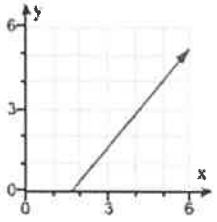
○ A. 

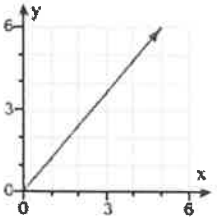
○ B. 

○ C. 

2. Which of these graphs shows a relationship that is not proportional?

○ A. 

○ B. 

○ C. 

3. Does the equation y = 8x show a proportional relationship between x and y?
   - ○ A. Yes, the graph of the equation is a straight line that passes through the origin.
   - ○ B. Yes, the graph of the equation is a straight line and does not pass through the origin.
   - ○ C. No, the graph of the equation does not pass through the origin.
   - ○ D. No, the graph of the equation is not a straight line.

4. Does the equation $y = 3x + 4$ show a proportional relationship between x and y?
   - ○ A. Yes, the graph of the equation is a straight line and passes through the origin.
   - ○ B. No, the graph of the equation is not a straight line.
   - ○ C. No, the graph of the equation does not pass through the origin.
   - ○ D. Yes, the graph of the equation is a straight line.

5. The graph shows a proportional relationship between time and number of boxes a machine packages. How many boxes does the machine package in 4 minutes?

ANSWER KEY

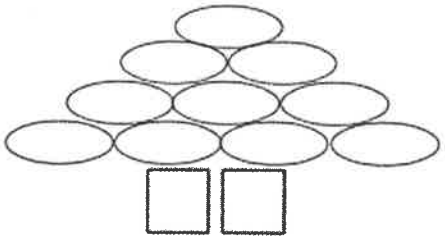
Practice 2-2: Proportional Relationships and Graphs

1. A
2. B
3. A
4. C
5. 100 boxes

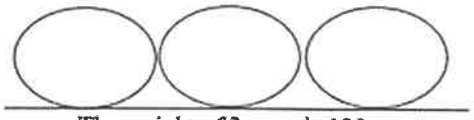
Practice 2-3

Constant of Proportionality

1. The variable y is in a proportional relationship with x. The number of squares represents an x value. The number of ovals represents the corresponding y value. Identify the constant of proportionality.



2. The weight of 3 eggs is shown. Identify the constant of proportionality of total weight to number of eggs.



The weight of 3 eggs is 120 g.

3. Suppose the relationship between x and y is proportional. When x is 6, y is 78. Identify the constant of proportionality of y to x.

4. Since a middle school opened, the girls' basketball team has had the same record every season. The team has won a total of 169 games while losing only 13 games. Find the constant of proportionality of wins to losses.

5. Does the table show a proportional relationship? If so, what is the constant of proportionality of y to x?

x	5	6	7	8
y	90	108	126	144

ANSWER KEY

Practice 2-3: Constant of Proportionality

1. 5
2. 40 g/egg
3. 13
4. 13 wins/loss
5. The table shows a proportional relationship. The constant of proportionality is 18.

Practice 2-4

Proportional Relationships and Equations

1. The equation $y = \frac{5}{7}x$ describes a proportional relationship between x and y. What is the constant of proportionality?

2. The equation P = 3s represents the perimeter P of an equilateral triangle with side length s. What is the perimeter of an equilateral triangle with side length 4 ft?

3. You bike 11.2 miles in 1.4 hours at a steady rate. What equation represents the proportional relationship between the x hours you bike and the distance y in miles that you travel?

4. Marco needs to buy some cat food. At the nearest store, 3 bags of cat food cost $15.75. How much would Marco spend on 5 bags of cat food?

5. An arts and crafts store sells sheets of stickers. Use the table to write an equation you can use to find the total cost y in dollars for x sheets of stickers.

Costs of Stickers	
Number of Sheets (x)	Cost in Dollars (y)
3	6.15
5	10.25
13	26.65
19	38.95

ANSWER KEY

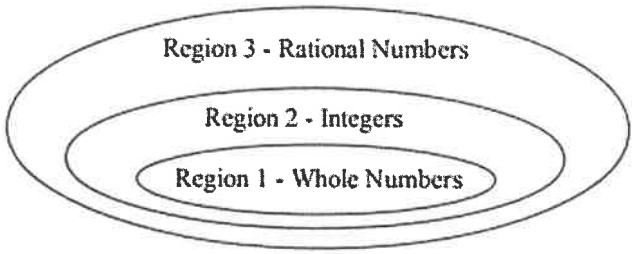
Practice 2-4: Proportional Relationships and Equations

1. $\frac{5}{7}$
2. 12 ft
3. $y = 8x$
4. $26.25
5. $y = 2.05x$

Practice 4-1

Rational Numbers, Opposites, and Absolute Value

1. Use the Venn diagram to determine the smallest region in which to place A when A = 0.127.



- ○ A. Integers
- ○ B. Rational numbers
- ○ C. Whole numbers

2. Determine whether the given number belongs to each set.

	Whole Numbers	Integers	Rational Numbers
–34	_____	_____	_____

3. Insert < , > , or = between the pair of numbers |–13| ___ |19| to make a true statement.

4. Which list shows the values in order from least to greatest?

- ○ A. |–32|, |0.74|, |–10|
- ○ B. |–10|, |0.74|, |–32|
- ○ C. |–32|, |–10|, |0.74|
- ○ D. |0.74|, |–32|, |–10|
- ○ E. |0.74|, |–10|, |–32|
- ○ F. |–10|, |–32|, |0.74|

5. A worker in a silver mine descends 57 feet. Use an integer to represent the change in the worker's position.

ANSWER KEY

Practice 4-1: Rational Numbers, Opposites, and Absolute Value

1. B
2. No, Yes, Yes
3. |–13| < |19|
4. E
5. –57

Practice 4-2 — *Adding Integers*

1. a) Complete the statement, "5 + (–3) is ___ units from 5, in the _____ direction."

   b) Use a number line to find the sum 5 + (–3).

2. a) Complete the statement, "–1 + (–3) is ___ units from –1 in the _____ direction."

   b) Use a number line to find the sum –1 + (–3).

3. Which pairs of integers are additive inverses? Check all that apply.

   ❑ A. 4, –4
   ❑ B. 4, 4
   ❑ C. 5, –5
   ❑ D. 5, –4

4. Which of the following are sums of additive inverses? Check all that apply.

   ❑ A. 2 + 2
   ❑ B. 3 + (–2)
   ❑ C. 2 + (–2)
   ❑ D. –3 + 3

5. Use the model to find the sum 2 + (–1). 

ANSWER KEY — *Practice 4-2: Adding Integers*

1. a) 5 + (–3) is 3 units from 5 in the negative direction.
   b) 2
2. a) –1 + –3 is 3 units from –1 in the negative direction.
   b) –4
3. A, C
4. C, D
5. 1

Practice 4-3

Adding Rational Numbers

1. Find the sum of $\frac{12}{13} + \left(-\frac{1}{13}\right)$.
2. Find the value of the expression (–8.6) + 7.2.
3. Find the sum of –7.5 + (–7.6).
4. Find the sum of $\frac{2}{3} + \left(-\frac{1}{3}\right)$.
5. In her garden Pam plants the tomato seed $2\frac{3}{4}$ in. below the ground. After one month the tomato plant has grown a total of $12\frac{1}{2}$ in. How many inches is the plant above the ground?

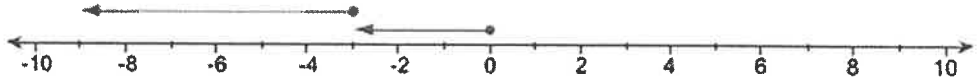
ANSWER KEY

Practice 4-3: Adding Rational Numbers

1. $\frac{11}{13}$
2. –1.4
3. –15.1
4. $\frac{1}{3}$
5. $9\frac{3}{4}$ in.

Practice 4-4

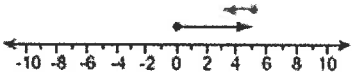
Subtracting Integers

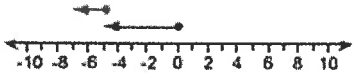
1. 

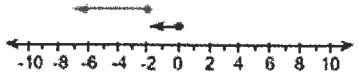
Which subtraction expression does the number line model show?

- ○ A. –3 – 6
- ○ B. 3 – 6
- ○ C. 6 – 3
- ○ D. –6 – 3

2. Which number line model shows the subtraction 2 – 5?

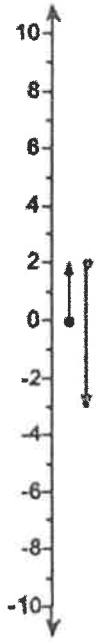
- ○ A. 

- ○ B. 

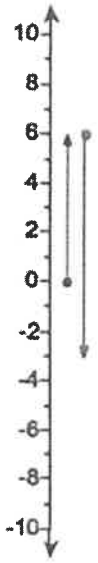
- ○ C. 

- ○ D. 

3. Use the number line model to find 2 – 5.



4. The temperature at the beginning of the day was 6°F. The temperature dropped 9°F by the end of the day. What was the temperature at the end of the day? Use the number line model to find 6 – 9.



5. Find the value of the expression 2 – (–5).

ANSWER KEY

Practice 4-4: Subtracting Integers

1. A
2. D
3. –3
4. –3°F
5. 7

Practice 4-5

Subtracting Rational Numbers

1. a) Is 3.2 – 5.7 positive, negative, or zero?

   ○ A. negative ○ B. zero ○ C. positive

   b) Is 3.2 – (–5.7) positive, negative, or zero?

   ○ A. negative ○ B. zero ○ C. positive

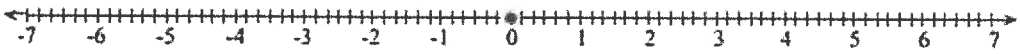
2. a) Is $\frac{2}{5}-\left(-\frac{5}{6}\right)$ positive, negative, or zero?

   ○ A. positive ○ B. negative ○ C. zero

   b) Is $\frac{2}{5}-\left(\frac{5}{6}\right)$ positive, negative, or zero?

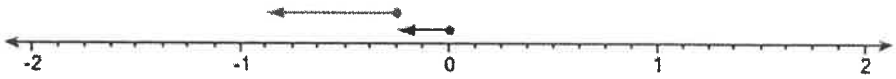
   ○ A. zero ○ B. positive ○ C. negative

3. Draw a point on the number line to indicate the difference $1\frac{1}{3}-4\frac{5}{6}$.

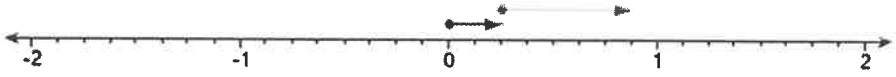


4. Which number line models $\frac{1}{4}-\left(-\frac{5}{8}\right)$ correctly?

○ A.



○ B.



5. Find the value of the expression 11.0 – (–2.1).

ANSWER KEY

Practice 4-5: Subtracting Rational Numbers

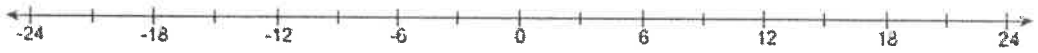
1. a) A
   b) C
2. a) A
   b) C
3. point drawn at –3.5
4. B
5. 13.1

Practice 5-1

Multiplying Integers

1. Multiply $7 \cdot (-5)$.

2. A beach towel loses 3 mg with each wash-and-dry cycle. The product $7(-3)$ represents change in the mass after 7 wash-and-dry cycles. Use the number line to find the product.



3. Find the product $-1(-24)$.

4. Find $(-6)(-2)$.

5. Multiply $-5(2)$.

ANSWER KEY

Practice 5-1: Multiplying Integers

1. -35
2. -21
3. 24
4. 12
5. -10

Practice 5-2

Multiplying Rational Numbers

1. Is the product $-8 \cdot (-3)$ positive or negative?

2. Is the product $(-0.39)(-0.06)(0.29)$ positive or negative?

3. Find the product $-\frac{5}{6} \cdot \frac{1}{8}$.

4. Multiply $-2\frac{1}{2} \cdot -1\frac{2}{3}$.

5. Multiply $(-0.6)(-0.62)$.

ANSWER KEY

Practice 5-2: Multiplying Rational Numbers

1. positive
2. positive
3. $-\frac{5}{48}$
4. $4\frac{1}{6}$
5. 0.372

Practice 5-3

Dividing Integers

1. Classify the quotient $-50 \div 5$ as positive, negative, zero, or undefined.

2. Is the expression $\frac{-42}{7}$ undefined? If not, divide.

3. Which of the quotients are equivalent to $-\frac{5}{8}$? Check all that apply.

   ❑ A. $\frac{-5}{8}$

   ❑ B. $\frac{5}{-8}$

   ❑ C. $\frac{-5}{-8}$

   ❑ D. $\frac{5}{8}$

   ❑ E. $-\frac{5}{-8}$

   ❑ F. $-\frac{-5}{8}$

4. Which of the quotients are equivalent to -5? Check all that apply.

   ❑ A. $\frac{5}{-1}$

   ❑ B. $\frac{-5}{-1}$

   ❑ C. $\frac{-15}{-3}$

   ❑ D. $\frac{-1}{-5}$

   ❑ E. $\frac{-15}{3}$

   ❑ F. $\frac{-5}{1}$

5. A cave diver descends 110 feet in 10 minutes at a constant rate. Which of the expressions shows the rate of the cave diver's change in depth?

   ○ A. $\frac{-110 \text{ feet}}{-10 \text{ minutes}}$

   ○ B. $\frac{10 \text{ feet}}{-110 \text{ minutes}}$

   ○ C. $\frac{110 \text{ feet}}{10 \text{ minutes}}$

   ○ D. $\frac{-110 \text{ feet}}{10 \text{ minutes}}$

ANSWER KEY — Practice 5-3: Dividing Integers

1. The quotient is negative.
2. $\frac{-42}{7} = -6$
3. A, B
4. A, E, F
5. D

Practice 5-4 — Dividing Rational Numbers

1. Which of these is the reciprocal of $-\frac{14}{5}$?

   ○ A. $\frac{5}{14}$ ○ C. $-\frac{14}{5}$

   ○ B. $-\frac{5}{14}$ ○ D. $\frac{14}{5}$

2. Find the reciprocal of $\frac{4}{7}$. Simplify your answer.

3. Which multiplication expression is equivalent to the division expression $-\frac{7}{17} \div \frac{13}{34}$?

   ○ A. $-\frac{17}{7} \times \frac{13}{34}$ ○ C. $-\frac{7}{17} \times \frac{13}{34}$

   ○ B. $-\frac{17}{7} \times \frac{34}{13}$ ○ D. $-\frac{7}{17} \times \frac{34}{13}$

4. Divide $\frac{5}{7} \div \left(-\frac{11}{5}\right)$ and simplify.

5. Solve $-\frac{9}{2}y = \frac{27}{2}$ for y.

ANSWER KEY — Practice 5-4: Dividing Rational Numbers

1. B
2. $\frac{7}{4}$
3. D
4. $-\frac{25}{77}$
5. –3

Practice 5-5

Operations With Rational Numbers

1. a) Simplify the expression $-8\left(-\frac{3}{4}+6\right)$ by applying the Distributive Property.

   b) Evaluate the expression $-8\left(-\frac{3}{4}+6\right)$.

2. a) Apply the Distributive Property to simplify the expression $-8(-2.5-7)$.

   b) Evaluate the expression $-8(-2.5-7)$.

3. Simplify the expression $4.5(-6)+19$.

4. Use the formula $F=\frac{9}{5}C+32$ to convert $-20°C$ to degrees Fahrenheit.

5. Simplify the complex fraction $\frac{-\frac{1}{4}}{-12}$.

ANSWER KEY

Practice 5-5: Operations With Rational Numbers

1. a) $-8\left(-\frac{3}{4}\right)+(-8)(6)$

   b) -42

2. a) $-8(-2.5)-7$

   b) 76

3. -8

4. $-4°F$

5. $\frac{1}{48}$