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Chapter 2 Rational Numbers

Parent Signature _____ **Date** _____

Student Signature _____ **Date** _____

Teacher Signature _____ **Date** _____

Name _____ Class Period _____

Evaluation of Notes

Criteria	10 – Unsatisfactory	20 – Satisfactory	25 – Good	30 – Excellent	Score
Set-up and Neatness	• No name • Paper appears to have been scrunched, put through a blender, or used as a napkin	• Name • Handwriting is hard to read.	• Name and class period • Some extra notes added	• Name and class period • Many extra notes added	_____
Completion of practice	• One or more sections are blank	• Some practice is not complete • Not all work is shown	• All practice is complete • Some work not shown	• All practice complete • All work shown	_____
Text marking	• None of the notes are highlighted or underlined	• One or more sections are missing highlighting or underlining	• Each section contains highlighting or underlining.	• Every key point is highlighted or underlined and it is done so neatly.	_____
Completed on time or within one day of being absent? +10 points!					_____
				Total Score	

Evaluation of Homework

Criteria	0 – Unsatisfactory	30 – Satisfactory	40 – Good	50 – Excellent	Score
Set-up and Neatness	• No name • Paper appears to have been scrunched, put through a blender, or used as a napkin	• Name • Handwriting is hard to read.	• Name and class period • Some answers are boxed	• Name and class period • All answers are boxed	_____
Completion of practice	• The homework is not done or attempted.	• Some problems are not done. • Not all work is shown	• All practice is complete • Some work not shown	• All practice complete • All work shown	_____
				Total Score	

Name _____ **Ms. Abadie's** _____ **Period**

Chapter 2	Rational Numbers: any number that can be written as a fraction; a number that can be written as a ratio of two integers (a positive or negative whole number.) *Example:* $-2 = \frac{-2}{1}$, $0.25 = \frac{1}{4}$
MAFS.7.NS.1.2	Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
Essential Question	How do you write a rational number as a decimal? In this lesson I am *converting between decimals and fractions*, so I can *better understand equality*.
2.1 Rational Numbers	Terminating decimal: a decimal that ends *Example:* 1.5, -0.25, 10.625 Repeating decimal: a decimal that repeats *Example:* -1.333...= -1.3
Homework **2.1 Practice A** **#1-8**	**Write the rational number as a decimal.** **1.** $-\frac{6}{5}$ **2.** $-7\frac{3}{8}$ **3.** $-\frac{3}{11}$ **4.** $1\frac{5}{27}$
Place Value	. tenths, hundredths, thousandths (the place value the decimal ends becomes the denominator: 10, 100, 1000)
Homework **2.1 Practice A** **#9-16**	**Write the decimal as a fraction or a mixed number in simplest form.** **5.** -0.7 **6.** 0.125 **7.** -3.1 **8.** -10.25
	Your skateboard ramp is $2\frac{3}{8}$ feet high. Your friend's skateboard ramp is $2\frac{2}{5}$ feet high. Which skateboard ramp is higher?

Name_____ Date_____

2.1 Practice A

Write the rational number as a decimal.

1. $\frac{5}{9}$ **2.** $-\frac{3}{8}$ **3.** $-\frac{3}{11}$ **4.** $\frac{7}{30}$

5. $1\frac{5}{12}$ **6.** $-2\frac{1}{3}$ **7.** $-\frac{13}{22}$ **8.** $5\frac{1}{6}$

Write the decimal as a fraction or mixed number in simplest form.

9. 0.7 **10.** −0.3 **11.** −0.43 **12.** 0.52

13. 1.25 **14.** −2.07 **15.** 4.18 **16.** 3.125

Order the numbers from least to greatest.

17. $1.6, -\frac{2}{3}, -0.5, \frac{3}{2}, -\frac{5}{2}$

18. $\frac{3}{4}, -1.7, 0.6, -\frac{7}{4}, 1.1$

19. $0, -\frac{2}{5}, 0.67, \frac{7}{9}, -0.5$

20. $-\frac{1}{3}, -0.3, \frac{4}{3}, 1.2, \frac{3}{2}$

21. You receive two quarters, one dime, and four pennies back in change.

a. Write the amount as a decimal.

b. Write the amount as a fraction in simplest form.

22. In football, a completion percentage is the number of completions divided by the number of passes. Does Tom or Ian have a higher completion percentage?

Player	Passes	Completions
Tom	22	10
Ian	18	9

23. You get 17 out of 22 questions correct on a math test.

a. What is your percent of correct answers?

b. The lowest score to pass is 70%. Did you pass the test?

c. What is the minimum number of correct answers needed in order to pass the test?

MAFS.7.NS.1.1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers.
Essential Question	How do you add rational numbers? In this lesson I am *using what I know about adding integers*, so I can *add rational expressions*.
2.2 Adding Rational Numbers	Adding rational numbers with the same signs= add, keep sign Adding rational numbers with different signs= subtract, use bigger sign
Homework **2.2 Practice A #1-8**	**Add.** **1.** $-\frac{7}{8}+\frac{1}{4}$ **2.** $-6\frac{1}{3}+\frac{20}{3}$ **3.** $2+\left(-\frac{7}{2}\right)$ **4.** $-12.5+15.3$ **5.** $-8.15+(-4.3)$ **6.** $0.65+(-2.75)$

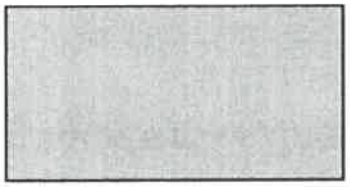
Homework
2.2 Practice A
#8-10

Evaluate the expression when $a = \frac{1}{2}$ and $b = -\frac{5}{2}$.

7. $b + 4a$

8. $|a + b|$

Find the perimeter (add up all the sides).



The change in the price of a certain brand of cereal from 2010 to 2012 is shown in the table.

Year	Change (in dollars)
2010	+0.30
2011	+0.20
2012	−0.20

In 2009 the price of cereal was $3.69.

What was the price of the cereal at the end of 2012?

The total change in the price of a certain brand of cereal from 2008 to 2012 was -$0.20.

Complete the table to show possible price changes in 2010 and 2012.

Year	Change in Dollars
2008	+0.20
2009	+0.30
2010	
2011	-0.20
2012	
Total	-0.20

5

Name_____ Date_____

2.2 Practice A

Add. Write fractions in simplest form.

1. $\frac{5}{16} + \left(-\frac{7}{16}\right)$
2. $\frac{3}{5} + \left(-\frac{4}{15}\right)$
3. $-\frac{7}{2} + 3\frac{2}{3}$
4. $5.6 + (-1.3)$
5. $-8.2 + 5.4$
6. $7.15 + (-12.76)$
7. Describe and correct the error in finding the sum.

$$\text{X} \quad \frac{3}{10} + \left(-\frac{1}{10}\right) = \frac{3+1}{10} = \frac{4}{10} = \frac{2}{5}$$

Evaluate the expression when $x = \frac{1}{2}$ and $y = -\frac{2}{5}$.

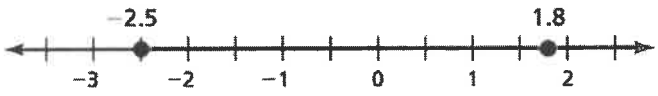
8. $-x + y$
9. $x + 2y$
10. $|x + y|$
11. The temperature is -12.6 degrees Celsius. The temperature goes up 7.9 degrees. What is the new temperature?
12. You finish $\frac{3}{8}$ of the project. Your friend finishes $\frac{1}{4}$ of the project. What fraction of the project is finished?

Add. Write fractions in simplest form.

13. $5 + \left(-2\frac{1}{3}\right) + \left(-3\frac{1}{6}\right)$
14. $-4\frac{1}{5} + 3\frac{2}{3} + \left(-1\frac{2}{5}\right)$
15. $-12.4 + 19.1 + (-4.3)$
16. Determine if the following statements are *always*, *sometimes*, or *never* true.
    a. When adding two negative rational numbers, the sum will be negative.
    b. When adding two rational numbers with different signs, the sum will be zero.
    c. When adding two positive rational numbers, the sum will be zero.
    d. When adding two rational numbers with different signs, the sum will be negative.

MAFS.7.NS.1.1	Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
Essential Question	How do you subtract rational numbers? In this lesson I am *using what I know about subtracting integers*, so I can *subtract rational expressions*.
2.3 Subtracting Rational Numbers	"add the opposite" (make the minus a plus and take the opposite sign of the number behind it) then use rules from adding
Homework **2.3 Practice A #1-6**	**1.** $\frac{1}{3} - \left(-\frac{1}{3}\right)$ **2.** $-3\frac{1}{3} - \frac{5}{6}$ **3.** $4\frac{1}{2} - 5\frac{1}{4}$ **4.** $-8.4 - 6.7$ **5.** $-20.5 - (-20.5)$ **6.** $0.41 - (-0.07)$
Homework **2.3 Practice A #7-9**	**7.** Find the distance between -7.5 and -15.3 on a number line.

Find the distance between the two numbers on the number line.



A gallon jug of milk is $\frac{3}{4}$ full. After breakfast the jug is $\frac{1}{12}$ full. Find the difference of the amounts before breakfast and after breakfast.

You buy a bag of dog food for $12.59 and a bottle of dog shampoo for $4.75. How much more did the dog food cost than the shampoo?

Name_____ Date_____

2.3 Practice A

Subtract. Write fractions in simplest form.

1. $\frac{3}{7} - \frac{10}{7}$
2. $\frac{7}{12} - \left(-\frac{13}{12}\right)$
3. $-\frac{1}{3} - \left(-\frac{9}{4}\right)$
4. $-3\frac{1}{2} - 1\frac{5}{6}$
5. $-12.41 - (-9.95)$
6. $2 - 8.25$

Find the distance between the two numbers on a number line.

7. $6, -4\frac{1}{4}$
8. $-3.1, -5.7$
9. $-1\frac{1}{3}, -4\frac{2}{5}$
10. Your dog's water bowl is $\frac{3}{4}$ full. After taking a drink, the water bowl is $\frac{1}{3}$ full. What fraction of the bowl did your dog drink?

Evaluate.

11. $\frac{7}{8} - \left(-2\frac{3}{4}\right) + \left(-4\frac{1}{2}\right)$
12. $5.76 - (-2.31) - 10.64$
13. Mary filled a water cooler with $6\frac{1}{2}$ gallons of water. She forgot to close the plug and $2\frac{5}{6}$ gallons leaked out.
    a. How many gallons of water remain in the cooler?
    b. She adds $1\frac{1}{4}$ gallons. How many gallons of water are now in the cooler?
    c. How many gallons of water must she add to the cooler to get the required $6\frac{1}{2}$ gallons?
14. Is the difference of two positive rational number always positive? Explain.

MAFS.7.NS.1.2	Apply and extend previous understandings of multiplication and division to multiply and divide rational numbers.
Essential Question	How do you multiply/divide rational numbers? In this lesson I am *using what I know about multiplying/dividing integers*, so I can *multiply/divide rational expressions.*
2.4 Multiplying/ Dividing Rational Numbers	Same signs- multiply/divide numbers and get a positive answer Different signs- multiply/divide numbers and get a negative answer
Homework **2.4 Practice A #5-16**	**Multiply or divide. Write fractions in simplest form.** **1.** $-\frac{6}{5} \div \left(-\frac{1}{2}\right)$ **2.** $\frac{1}{3} \div \left(-2\frac{2}{3}\right)$ **3.** $1.8(-5.1)$ **4.** $-6.3(-0.6)$ **5.** $-\frac{2}{3} \cdot 7\frac{7}{8} \cdot \frac{3}{2}$ **6.** $-7.2 \cdot 0.1 \cdot (-100)$
	$9.408 \div (-2.45)$

	How many $\frac{2}{3}$-ounce packages of peanuts can be made with 8 ounces of peanuts? Explain how you found your answer.
	A 13.5-gallon gasoline tank is $\frac{4}{5}$ full. How many gallons will it take to fill the tank?
	Sandy uses $\frac{2}{7}$ of a pound of raisins in each batch of raisin bread. Yesterday, Sandy used $\frac{5}{7}$ of a pound of raisins. How many batches of raisin bread did Sandy make yesterday?
	Joe and Scott equally share a pizza. If Scott eats $\frac{1}{2}$ of his portion of the pizza, what fraction of the whole pizza does he eat?
	In Homestead, $\frac{2}{5}$ of the households own pets. Of the households with pets, $\frac{1}{3}$ have cats. What fraction of the households in Homestead own cats?

Name_____ Date_____

2.4 Practice A

Tell whether the expression is *positive* or *negative* without evaluating.

1. $\frac{-7.5}{4.25}$
2. $\frac{4}{9} \times \left(-\frac{6}{7}\right)$
3. $-\frac{1}{5} \div \left(-\frac{2}{3}\right)$
4. $-3.2 \times (-1.7)$

Divide. Write fractions in simplest form.

5. $-\frac{2}{7} \div \frac{10}{7}$
6. $-\frac{1}{2} \div \left(-\frac{3}{4}\right)$
7. $\frac{2}{3} \div (-14)$
8. $-1\frac{1}{6} \div \frac{5}{3}$
9. $-0.72 \div (-0.9)$
10. $5.4 \div (-3.6)$

Multiply. Write fractions in simplest form.

11. $\frac{2}{5} \times \left(-\frac{10}{7}\right)$
12. $-\frac{3}{4} \bullet \left(-\frac{10}{9}\right)$
13. $\frac{3}{2}\left(-2\frac{2}{9}\right)$
14. $\left(-1\frac{3}{8}\right)^2$
15. -3.7×2.1
16. $-5.7 \bullet (-2.06)$

17. There are 15 people in a room. Each person ate $\frac{2}{3}$ of a pizza. There was no pizza remaining. How many pizzas were in the room?

18. During a drought, a river's height decreases by 0.35 inch every day. What is the change in the river's height after 7 days?

Evaluate.

19. $-3^2 + 4.6 \times (-0.1)$
20. $-2\frac{2}{3} \div 1\frac{5}{6} + 2$
21. $-4.31 \bullet 3.09 + (-0.98)$
22. $-3 \times \left(-1\frac{7}{12}\right) - \left(-\frac{3}{2}\right)^2$

23. Write two fractions, both not positive, whose product is $\frac{5}{8}$.

24. Fill in the blank to make the solution correct.

$5.6 \times \underline{\quad ? \quad} = -19.04$

Name _____ Date _____

Chapter 2 Take Home Quiz #1

For use after Section 2.2

Write the rational number as a decimal.

1. $-\frac{9}{10}$

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

Write the decimal as a fraction or mixed number in simplest form.

3. -0.65

4. -3.75

Complete the statement using <, >, or =.

5. $\frac{14}{8}$ ___ $1\frac{3}{4}$

6. -5.65 ___ -5.6

7. $-6\frac{7}{8}$ ___ $-6.\overline{8}$

8. $-3\frac{11}{12}$ ___ $-3\frac{14}{15}$

Add. Write fractions in simplest form.

9. $-8\frac{3}{8} + 6\frac{1}{4}$

10. $-2\frac{3}{4} + \left(-1\frac{1}{3}\right)$

11. $-7.3 + (-3.6)$

12. $8.36 + (-4.825)$

13. The coldest temperature on record in Town A is $-3.33°F$.

    The coldest temperature on record in Town B is $-3\frac{2}{5}°F$.

    Which town has the colder temperature?

14. The table shows four transactions (in dollars) for a bank account. Positive number represent *deposits*, and negative numbers represent *withdrawals*. The balance before the transactions is \$75.50. What is the balance after the transactions?

Transactions	
Date	**Amount**
11/4	60.68
11/4	−25.16
11/7	−82.05
11/11	55.95

Answers

1. _____
2. _____
3. _____
4. _____
5. See left.
6. See left.
7. See left.
8. See left.
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

16

Name _____ Date _____

Chapter 2

Take Home Quiz #2

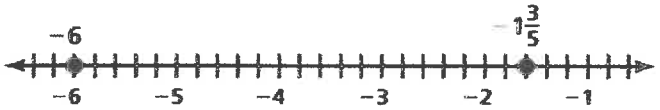
For use after Section 2.4

Subtract. Write fractions in simplest form.

1. $6.3 - 9.5$
2. $4.2 - (-2.6)$
3. $-5\frac{1}{2} - 2\frac{1}{3}$
4. $-3\frac{4}{9} - \left(-2\frac{1}{18}\right)$

Find the distance between the two numbers on the number line.

5. 

6. 

Multiply or divide. Write fractions in simplest form.

7. $4.5(-6.2)$
8. $-3\frac{3}{5} \div 2\frac{7}{10}$
9. $-4\frac{1}{6} \cdot \left(-3\frac{3}{5}\right)$
10. $-2.7 \div 0.9$

Evaluate.

11. $4.5 - 11.2 \div 2^3$
12. $-2\frac{3}{5} \times \frac{2}{3} - 1\frac{4}{5}$

13. A bottle contains 16.9 fluid ounces of water. After you take a sip, the bottle is $\frac{9}{10}$ full. How many fluid ounces is your sip?

14. Your class is holding a fundraiser for a local charity. After the first week, your class raised $\frac{1}{8}$ of your goal. After the second week, your class raised a total of $\frac{3}{5}$ of your goal. What fraction of the goal was raised during the second week of the fundraiser?

15. Stock A changed by $-\$5.70$ during the day. Stock B changed by $2\frac{1}{3}$ times that amount. How much did Stock B change during the day?

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

17

Name _____ Date _____

Chapter 2 Ms Abadie's Test Review

1. Order the numbers from least to greatest.

$$\frac{4}{5},\ -1.6,\ -\frac{4}{3},\ 0.9,\ \frac{2}{3}$$

Complete the statement using <, >, or =.

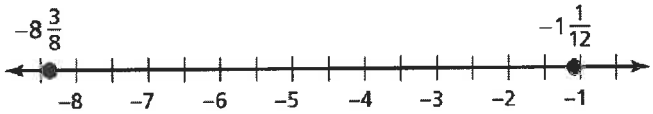
2. -2.34 ___ -2.43

3. $\frac{16}{11}$ ___ $1.\overline{45}$

Find the distance between the two numbers on the number line.

4.

5.



Add or subtract. Write fractions in simplest form.

6. $15.36 + (-12.095)$

7. $-7.91 - (-5.28)$

8. $-3\frac{7}{9} + \left(-2\frac{1}{3}\right)$

9. $\frac{13}{4} - \left(-4\frac{9}{10}\right)$

Evaluate the expression when $x = \frac{5}{8}$, and $y = -\frac{5}{3}$.

10. $x + y$

11. $y - x$

12. $-2x + y$

13. $3x + |y|$

18

14. You spend $3\frac{2}{3}$ hours hiking and an additional $\frac{3}{4}$ hour to rest.

a. How much time did you spend hiking and resting?

b. How much more time did you spend hiking than resting?

Evaluate.

15. $3\frac{1}{5} - \left(-\frac{7}{2}\right) + (-1)$

16. $2.4 - |-3.61| - (-8.3)$

17. $-2\frac{1}{3} \times 5\frac{1}{4}$

18. $7.452 \div (-2.16)$

19. $\left(-\frac{3}{2}\right)^2 - \frac{1}{3}\left(3\frac{1}{2}\right)$

20. $0.1 \times (-10.5) - 4.76$

21. The table shows the changes in rainfall (in inches) from the monthly average of four months. What is the mean change?

Month	May	June	July	August
Change (inches)	1.05	−0.58	−2.12	−2.67

22. A recipe calls for $2\frac{1}{2}$ cups of sugar. You have $2\frac{1}{3}$ cups of sugar.
Do you have enough sugar? If not, how much more sugar is needed? Explain your answer.

23. A 10.5-gallon aquarium is $\frac{2}{3}$ full. How many more gallons of water does it take to fill the aquarium?

24. How many 0.45-ounce packages of cinnamon can be made with 3.15 ounces of cinnamon?