

learning focus:

- ✓ add, subtract, multiply, and divide integers in real-world situations
- ✓ classify rational numbers
- ✓ add, subtract, multiply, and divide rational numbers in real-world situations

NUMBERS & OPERATIONS UNIT

11-DAY TEKS-ALIGNED UNIT



A MANEUVERING THE MIDDLE® RESOURCE

NUMBERS & OPERATIONS



an 11 day TEKS-aligned unit

TEKS: 7.2A, 7.3A, 7.3B

**ready-to-go, scaffolded
student materials**

NUMBERS AND OPERATIONS UNIT

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NUMBERS & OPERATIONS



an 11 day TEKS-aligned unit
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student friendly + real-world application

graphic organizers

Unit: Numbers and Operations
Homework 1

Name _____
Date _____ Pd _____

CLASSIFYING RATIONAL NUMBERS

1. Classify the numbers in the table by checking all that apply.

	NATURAL	WHOLE	INTEGER	RATIONAL
a. -2.75				
b. 15.0				
c. -13				
d. $\frac{33}{3}$				
e. $\frac{2}{3}$				

2. In the diagram below, set I represents integers and set J represents whole numbers. Shade the values that belong to each set.

I: -0.5 24 $-\frac{5}{6}$

J: 13.2 0 $-\frac{10}{2}$

3. Use the hints to write the name of the number in the box:

$-\frac{18}{2}$

- Janelle's number could be called both a natural number and an integer.
- Tara's number is a rational number but not a natural number.
- Danny's number is an integer but not a natural number.

4. Which of the following is true about the number $-\frac{7}{20}$?

-5 $\frac{8}{4}$ -2

Use your understanding of the number system to answer the questions below.

2. Use the graphic organizer below to correctly place each of the following values.

0.125, 308, -6, $-\frac{2}{3}$, 0, -41, -3.7, 22, $\frac{4}{5}$

3. Four different statements about the number system are written below. Determine which statements are true and which are false. Correct any false statements.

#1: A rational number is always an integer

4. The students in Mrs. Caldwell's class are representing the number system. Describe and correctly label any numbers that belong to each set.

Summarize today's lesson.

Unit: Numbers and Operations
Student Handout 1

Name _____
Date _____ Pd _____

CLASSIFYING RATIONAL NUMBERS

In biology class, students are learning to classify different animals into the diagram below.

a. If an animal is a dolphin, are they also a mammal? Why or why not?

b. If an animal is a carnivore, are they also a dolphin?

c. If you are asked to classify a horse, in which part of the diagram does it belong?

The number system classifies numbers into _____ and _____ based on their type and characteristics.

NATURAL NUMBERS	<ul style="list-style-type: none"> The set of _____ integers Examples: _____
WHOLE NUMBERS	<ul style="list-style-type: none"> The set of all positive counting numbers starting with _____ Examples: _____
INTEGERS	<ul style="list-style-type: none"> The set of whole numbers and their _____ Examples: _____
RATIONAL NUMBERS	<ul style="list-style-type: none"> Numbers that can be written as fractions, terminating decimals, and _____ decimals Examples: _____

1. Place the headings for each type of number in the graphic organizer at the right. Then, write the following values in the box where they belong.

$\frac{16}{4}$ -19 $\frac{3}{5}$

3^2 0 -6.1

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higher level analysis

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streamline your planning process with unit overviews

NUMBERS AND OPERATIONS OVERVIEW

READINESS STANDARDS

7.3B Apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.

SUPPORTING STANDARDS

7.2A Extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers.

7.3A Add, subtract, multiply, and divide rational numbers fluently.

- ✓ key vocabulary
- ✓ vertical alignment

BIG IDEAS

- All numbers are organized b
- Rational numbers can be us

ESSENTIAL QUESTION

- How are numbers organized
- What is the relationship bet
- What pattern do you notice
- How do I know which mathe

NUMBERS AND OPERATIONS PACING GUIDE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Classifying Rational Numbers	Adding and Subtracting Integers	Adding and Subtracting Rational Numbers I	Adding and Subtracting Rational Numbers II	Mixed Practice with Rational Numbers I
Student Handout 1 Homework 1	Student Handout 2 Homework 2	Student Handout 3	Student Handout 4	Student Handout 5
DAY 6	DAY 7			
Adding and Subtracting Rational Numbers Quiz	Multiplying and Dividing Integers			
Quiz 1	Student Handout 6 Homework 6			
DAY 11	NOTES			
Numbers and Operations Unit Test				
Unit Test				

sample pacing calendar

NUMBERS AND OPERATIONS OVERVIEW

TOPIC	TEACHING TIPS
Classifying Rational Numbers	Begin class by asking students to classify themselves based on characteristics. Give students a minute to form groups based on characteristics. Then, ask students to share the characteristics of the group. Question students as to whether or not other students from outside the group could also be included.
Adding and Subtracting Integers	Use masking tape to mark off a number line on the floor from -5 to 5. After teaching the lesson, ask students to "walk out" a problem and demonstrate how to model the problem.
Adding Rational Numbers	Football yardage and a thermometer are two great real-life examples. On the student handouts, consider modeling the first two problems in each section. Then, ask students to work with their partner on the next two to three. Take turns having partners share their responses.
Subtracting Rational Numbers	This can be a difficult concept. There are several tricks like "keep, change, flip." However, for students to be successful in future mathematical concepts, it is key that they begin to mentally think of subtracting as "adding the opposite" or the additive inverse. It helps students to actually rewrite the problems to display it as an addition problem.
Multiplying and Dividing Integers	A great engagement video: Flocabulary.com - Multiplying and Dividing Integers
Multiplying and Dividing Rationals	Be sure to review the process for multiplying and dividing positive rational numbers. This can be the most difficult portion of the lesson. Students should be able to apply the same rules for multiplying and dividing integers.
Rational Number Operations	For more ideas, visit https://www.maneuveringthemiddle.com/category/math-concepts/

teaching ideas



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unit study guide + assessments

- ✓ quizzes
- ✓ editable unit test

Unit: Numbers and Operations
Quiz 1

Name _____
Date _____ Pd _____

QUIZ: ADDING AND SUBTRACTING RATIONALS

Use the table to answer questions 1-4.

ACCOUNT	BALANCE
A	\$56.84
B	-\$19.00

1. What is the total amount of the negative balances?

2. What is the total amount of the positive balances?

3. How much more money is in account A than in account B?

A. \$64.36 B. \$36.86

4. If accounts B and A are combined, what is the total amount of money?

A. \$37.84 B. \$75.84

Solve the problems below. Be sure to show your work.

5. $-20 + (-14) =$ 6. $19 + (-12) =$

Unit: Numbers and Operations
Review

Name _____
Date _____ Pd _____

NUMBERS AND OPERATIONS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN CLASSIFY RATIONAL NUMBERS. 7.2A

1. Classify the following numbers in the diagram below:

11, 4.2, $-\frac{3}{4}$, $\frac{18}{3}$, 0, $-\frac{24}{4}$, 8.625, 9

3. Use the hints to write the name of the number in the box.

- Shaan's number could be called by two names.
- Reyes' number is a rational number.
- Allison's number is an integer and a whole number.

4. Mark each of the statements below as true or false.

_____ a. an integer is always a whole number

_____ b. all whole numbers are integers

_____ c. a rational number is always a whole number

_____ d. an integer can also be a rational number

5. Is it possible for a number to be both a whole number and a rational number? Explain.

SEVENTH GRADE CURRICULUM

NUMBERS AND OPERATIONS

UNIT ONE: ANSWER KEYS

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answer keys included