Sheridan Board Members and Distinguished Guests

Math

Core focus curriculum ~Itinerary~

- Piloted **Core Focus on Math** 2nd half of last year current 8th grade familiar with style and had success, current students are showing growth and comprehension....
- Middle school math teachers have attended several trainings revolving Core focus...
- 3 text books per grade level (1)
- Common Core Standards covered by grade level (2)
- Breakdown of each standard per lesson (3) and Pacing Guide (4)
- **Teacher-Textbook:** sneak-peek: 4 blocks and 6-7 lessons per block (5)
- Deeper sneak-peek: Materials needed, Warm-up problems, Explore (6)
- Deeper sneak-peek: Teaching Tips(7) and Focused Assignment(8) Review Previously covered materials (9)
- **Student textbook:** (Tabs: 1-2-3-4-5) * not in your packet!
- **Teacher Resource Binder:** Grade level worksheets, Tiered worksheet, Challenge worksheets, Grade level assessments and Tiered Assessments (10-11) and Exit Cards and Self-Assessments (12) Resources and Computer discs (edit, PowerPoint and all resource materials available to show on smartboard (13)
- Examples of Resource binder worksheets: grade level/Spanish (14-15), Tiered (16-17), Challenge (18)
- **Student Example** (Grade Level/Tiered Worksheets (19-20)
- **Samples From Resource Binder:** Exit cards, Grade Level Tests/Tiered tests (21-29) and Self- Assessment (30)
- **Sample Cornell Notes For Block 3 Lessons 1-6** (All the rest of the pages)

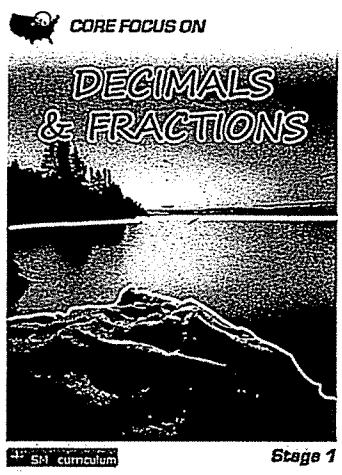
Keys:

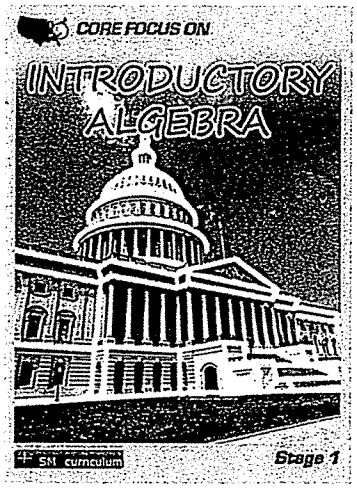
- ✓ Direct connection to common Core Standards
- ✓ Ability to differentiate instruction
- ✓ Ability to edit content when needed
- ✓ Multiple sources for resources
- ✓ Student textbooks are written so that reading comprehension doesn't interfere with mathematics.
- ✓ Curriculum supports both Visual/auditory/hands on learning
- ✓ Online Component for students and parents

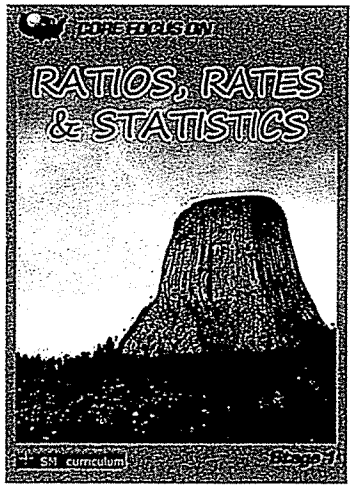
About Core Focus on Math ©2014

The Core Focus on Math series is written to address the 2010 Common Core State Standards in Mathematics (CCSSM) in both content and mathematical practices for grades 6, 7, 8 and Algebra I. There are three texts per grade which cover multiple CCSSM clusters in depth. Each text also includes appropriate pre-requisite and extension lessons and activities.

GRADE 6







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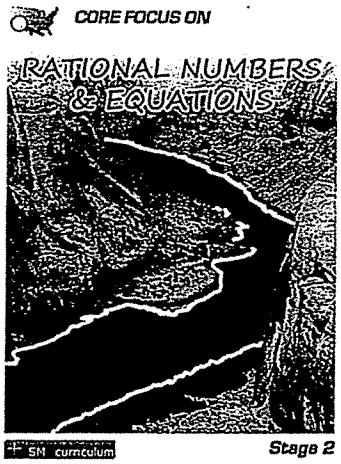
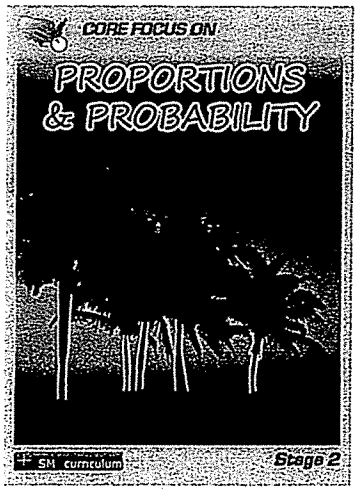
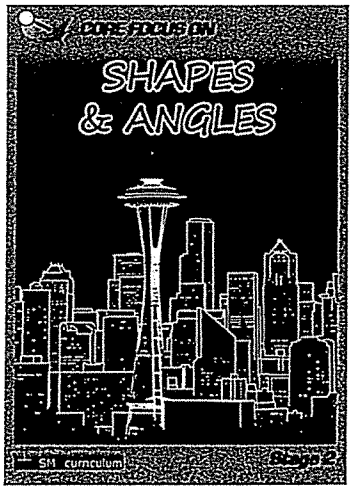
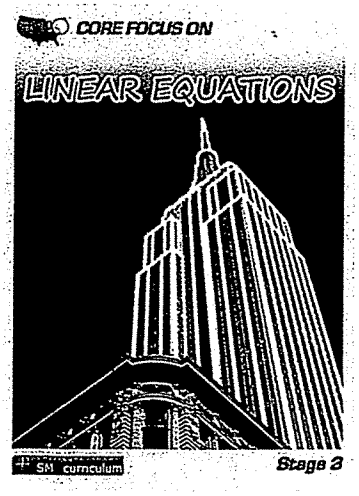
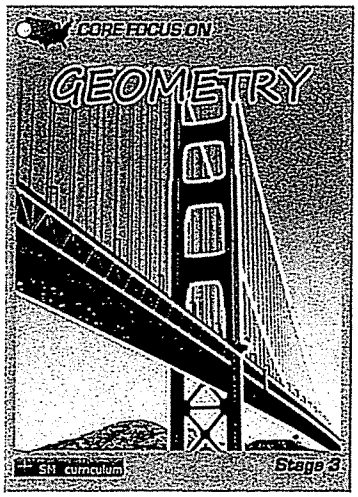


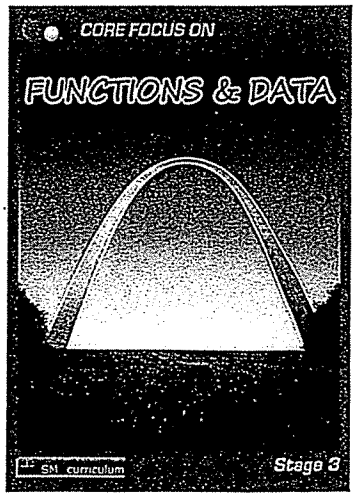




GRADE 8







(1)

Core Focus on Math and the 2010 Common Core State Standards

The table below shows the 2010 Common Core State Standard clusters addressed in depth in each text.

	Text Title	Common Core State Standard Clusters
Grade 6	Core Focus on Decimals & Fractions (DF)	• Apply and extend previous understandings of multiplication and division to divide fractions by fractions. • Compute fluently with multi-digit numbers and find common factors and multiples. • Solve real-world and mathematical problems involving area, surface area, and volume.
	Core Focus on Introductory Algebra (IA)	• Apply and extend previous understandings of numbers to the system of rational numbers. • Apply and extend previous understandings of arithmetic to algebraic expressions. • Reason about and solve one-variable equations and inequalities. • Represent and analyze quantitative relationships between dependent and independent variables.
	Core Focus on Ratios, Rates & Statistics (RRS)	• Understand ratio concepts and use ratio reasoning to solve problems. • Develop understanding of statistical variability. • Summarize and describe distributions.
Grade 7	Core Focus on Rational Numbers & Equations (RNE)	• Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. • Use properties of operations to generate equivalent expressions. • Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
	Core Focus on Proportions & Probability (PP)	• Analyze proportional relationships and use them to solve real-world and mathematical problems. • Use random sampling to draw inferences about a population. • Draw informal comparative inferences about two populations. • Investigate chance processes and develop, use, and evaluate probability models.
	Core Focus on Shapes & Angles (SA)	• Draw, construct and describe geometrical figures and describe the relationships between them. • Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
Grade 8	Core Focus on Linear Equations (LE)	• Analyze and solve linear equations and pairs of simultaneous linear equations. • Understand the connections between proportional relationships, lines, and linear equations. • Define, evaluate, and compare functions. • Use functions to model relationships between quantities. • Investigate patterns of association in bivariate data.
	Core Focus on Geometry (G)	• Know that there are numbers that are not rational, and approximate them by rational numbers. • Work with radicals and integer exponents. • Understand congruence and similarity using physical models, transparencies, or geometry software. • Understand and apply the Pythagorean Theorem. • Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.
Alg 1	Core Focus on Functions & Data (FD)	Non-linear functions and data standards found in the Algebra I according to the CCSSM Appendix A Compacted Scope and Sequence.

Stage 2 Standards Correlation by Lesson

Core Focus on Rational Numbers & Equations

Lesson	CCSS Alignment
1.1	4.NF.1
1.2	4.NF.1
1.3	5.NF.1/5.NF.2
1.4	6.NS.1/5.NF.6
1.5	6.NS.1/5.NF.1
1.6	6.NS.3
1.7	6.NS.3
2.1	6.NS.5/6.NS.7
2.2	7.NS.1/7.NS.3 (M)
2.3	7.NS.1a,b,d/7.NS.3 (M)
2.4	7.NS.2a,c/7.NS.3 (M)
2.5	7.NS.2b,c/7.NS.3 (M)
2.6	7.NS.3 (M)
2.7	7.NS.3 (M)
3.1	7.NS.1/7.NS.3 (M)
3.2	7.NS.1/7.NS.3 (M)
3.3	7.NS.1a,b,d/7.NS.3 (M)
3.4	7.NS.2/7.NS.3 (M)
3.5	7.NS.2a,c/7.NS.3 (M)
3.6	7.NS.2b,c/7.NS.3 (M)
4.1	6.EE.2
4.2	6.EE.7
4.3	7.EE.2/7.EE.3/ 7.EE.4a (M)
4.4	7.EE.1/7.EE.3/ 7.EE.4a (M)
4.5	7.EE.1/7.EE.2/ 7.EE.3 (M)
4.6	7.EE.2/7.EE.3 (M)
4.7	7.EE.2/7.EE.3 (M)
4.8	7.EE.4b (M)

Core Focus on Proportions & Probability

Lesson	CCSS Alignment
1.1	6.RP.3d
1.2	7.NS.2d (M)
1.3	7.RP.1 (M)
1.4	7.RP.1 (M)
1.5	7.RP.1 (M)
1.6	7.RP.1 (M)
2.1	7.RP.2a (M)
2.2	7.RP.3 (M)
2.3	7.RP.3 (M)/ 7.G.1 (A)
2.4	7.G.1 (A)/ 7.RP.3 (M)
2.5	7.G.1 (A)
2.6	7.G.1 (A)
3.1	6.RP.3
3.2	7.RP.3 (M)
3.3	7.RP.3 (M)
3.4	7.RP.3 (M)
3.5	7.RP.3 (M)
4.1	7.SP.5/7.SP.6/7.SP.7 (S)
4.2	7.SP.6/7.SP.7 (S)
4.3	7.SP.6/7.SP.7 (S)
4.4	7.SP.8 (S)
4.5	7.SP.8 (S)
4.6	7.SP.1/7.SP.2 (S)
4.7	7.SP.1/7.SP.2 (S)
4.8	7.SP.2 (S)/ 7.SP.3/ 7.SP.4 (A)
5.1	6.NS.8
5.2	8.F.5
5.3	7.RP.2a,b,d (M)
5.4	7.RP.2 (M)
5.5	7.RP.2 (M)

Core Focus on Shapes & Angles

Lesson	CCSS Alignment
1.1	4.MD.5/4.MD.6
1.2	4.MD.5/4.MD.6/ 4.MD. 7
1.3	7.G.5 (A)
1.4	7.G.5 (A)
1.5	7.G.2 (A)
2.1	7.G.6 (A)
2.2	7.G.6 (A)
2.3	7.G.4 (A)
2.4	7.G.4 (A)
2.5	7.G.4 (A)
2.6	7.G.4 (A)
2.7	7.G.4/7.G.6 (A)
2.8	7.G.4/8.G.4 (A)
2.9	7.G.4 (A)/HS.G-C.5
3.1	7.G.6 (A)
3.2	7.G.6 (A)
3.3	7.G.3 (A)
3.4	7.G.6 (A)
3.5	7.G.6 (A)
3.6	7.G.6 (A)
3.7	7.G.6 (A)

Key

- Prior Grade-Level Content (Pre-Requisite)
- CCSS Grade-Level Content
- Future Grade-Level Content (Extension)
- (M) Major Standard
- (S) Supporting Standard
- (A) Additional Standard

Unit 3 – Rational Number Operations

Core Focus on Rational Numbers & Equations Block 3

Lesson	Lesson Title	CCSS Alignment	Recommended Pacing
3.1	Estimating Sums and Differences	7.NS.1/7.NS.3 (M)	Including assessments and targeted interventions: **12 days**
3.2	Adding Rational Numbers	7.NS.1/7.NS.3 (M)	
3.3	Subtracting Rational Numbers	7.NS.1a,b,c/ 7.NS.3 (M)	
3.4	Estimating Products and Quotients	7.NS.2/7.NS.3 (M)	
3.5	Multiplying Rational Numbers	7.NS.2a,c/7.NS.3 (M)	
3.6	Dividing Rational Numbers	7.NS.2b,c/7.NS.3 (M)	

Unit 4 – Solving Equations

Core Focus on Rational Numbers & Equations Block 4

Lesson	Lesson Title	CCSS Alignment	Recommended Pacing
4.1	Expressions and Equations	6.EE.2	Including assessments and targeted interventions: **15 days**
4.2	Solving One-Step Equations	6.EE.7	
4.3	Solving Two-Step Equations	7.EE.2/7.EE.3/ 7.EE.4a (M)	
4.4	The Distributive Property	7.EE.1/7.EE.3/ 7.EE.4a (M)	
4.5	Simplifying Expressions	7.EE.1/7.EE.2/ 7.EE.3 (M)	
4.6	Simplifying and Solving Equations	7.EE.2/7.EE.3 (M)	
4.7	Solving Equations with Variables on Both Sides	7.EE.2/7.EE.3 (M)	
4.8	Linear Inequalities	7.EE.4b (M)	

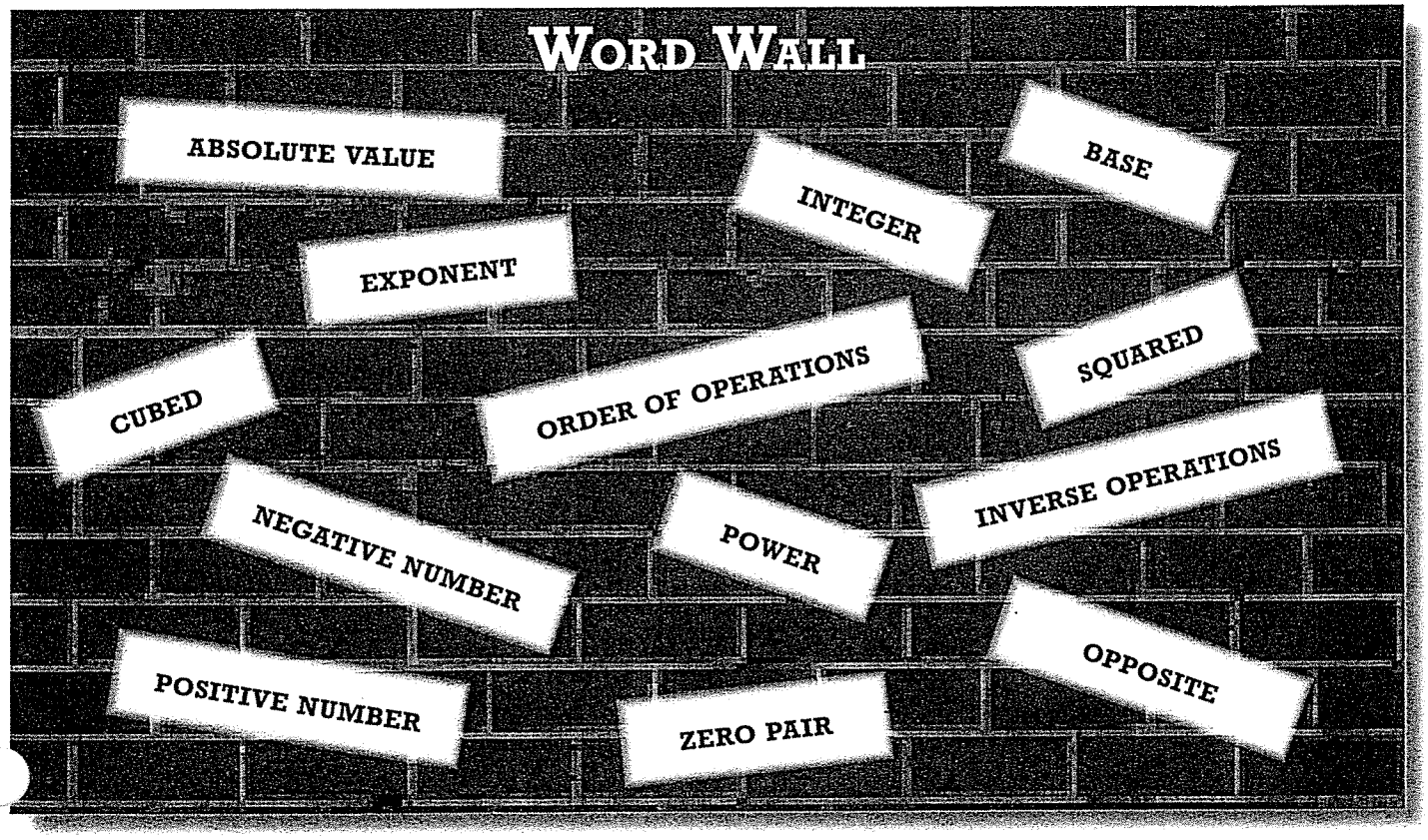
Unit 5 – Ratios and Rates

Core Focus on Proportions & Probability Block 1

Lesson	Lesson Title	CCSS Alignment	Recommended Pacing
1.1	Measurement	6.RP.3d	Including assessments and targeted interventions: **10 days**
1.2	Fractions and Decimals	7.NS.2d (M)	
1.3	Ratios	7.RP.1 (M)	
1.4	Unit Rates	7.RP.1 (M)	
1.5	Rate Conversions	7.RP.1 (M)	
1.6	Rates and Ratios with Complex Fractions	7.RP.1 (M)	

CORE FOCUS ON RATIONAL NUMBERS & EQUATIONS

BLOCK 2 ~ INTEGERS



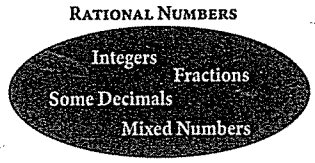
CCSS 7.NS.1/7.NS.3 (M)

ESTIMATING SUMS AND DIFFERENCES

LESSON 3.1

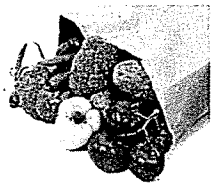
Estimate sums and differences of rational numbers.

A number that can be written as a fraction of two integers is called a rational number. Integers, fractions and some decimals are types of rational numbers. The integer addition and subtraction rules you learned in Block 2 apply to all rational numbers. In this lesson, you will use these rules while estimating sums and differences of rational numbers.



EXPLORE! **TRIP TO THE STORE**

A family of four went to the grocery store. The family split up the list of items to purchase. Help the family estimate as they find the items they need.



Step 1: The father picks up three items in the frozen food section. His items cost \$4.79, \$5.07 and \$9.49. He wants to determine the approximate cost of his three items. Help him by rounding each number to the nearest dollar and then adding the prices together.

Step 2: Janessa, the daughter, was asked to buy three different kinds of apples. She weighed each type. She got $\frac{2}{5}$ pound of Granny Smith apples, $\frac{3}{16}$ pound of Golden Delicious apples and $\frac{11}{12}$ pound of Gala apples. She wants to determine the approximate total weight of the apples.

a. Determine if each fraction is closer to 0, $\frac{1}{2}$ or 1. Round each fraction to the number it is closest to.

b. Add the estimated weights together.

Step 3: Mario, the son, bought four different-sized candy bars. The candy bars cost \$0.89, \$0.59, \$0.19 and \$0.69. Mario wants to determine the approximate cost for the candy bars.

a. Determine if each decimal is closer to 0, 0.5 or 1. Round the cost of each candy bar to one of these numbers.

b. Add the estimated amounts together.

Step 4: The mother went to the bulk food aisle. She purchased $2\frac{3}{4}$ pounds of oatmeal, $4\frac{1}{8}$ pounds of corn meal and $1\frac{5}{16}$ pounds of peanuts. After putting the items in her basket, she wants to determine the total weight of the food in her basket. Round each mixed number to the nearest whole number. Add these estimated amounts together.

Materials Needed

None

Warm-Up Problems

Find the value of each expression.

1) $\frac{1}{2} + \frac{3}{4}$ $1\frac{1}{4}$

2) $4.7 + 5.08$ 9.78

3) $2\frac{2}{5} \cdot (1\frac{1}{2})$ $3\frac{3}{5}$

4) $\frac{-28}{7}$ -4

5) $10 - 3.58$ 6.42

Explore!

This activity allows students to work through a real-world situation where estimating is taking place. All the numbers in the activity are positive so it is a nice way to begin the discussion about estimating with all rational numbers before negative numbers are added to the mix.

Step 1: Answers may vary.
$5 + 5 + 9 = 19$

Step 2: a) $\frac{1}{2}$, 0, 1

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

Step 3: a) 1, 0.5, 0, 0.5
b) 2

Step 4: $3 + 4 + 1 = 8$

Mathematical Practices – A Closer Look

SMP1 Estimation is a skill that students will access when they answer the question, "Does my answer make sense?" Use the **Explore!** to build students' problem-solving skills as they make sense of situations where estimation is useful.

SMP3 In this lesson, fractions and decimals between zero and one are estimated using benchmark values (0, $\frac{1}{2}$ and 1). Have students construct a viable argument on why it makes sense to round these values to the nearest half while larger numbers are rounded to the nearest whole number.

SMP5 Students should use estimation as a tool to help detect possible errors. Remind students they can estimate answers before or after calculating the accurate solution in future problems to confirm that their answers make sense.

Step 5: Answers may vary.

Step 6: Answers may vary.

EXPLORE! (CONTINUED)

Step 5: Why do you think people would estimate in the grocery store?

Step 6: Describe a situation where you estimated with fractions or decimals.

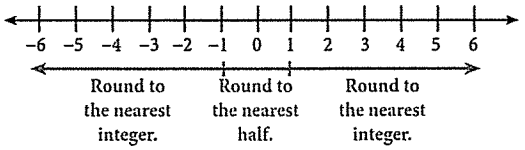
ESTIMATING SUMS AND DIFFERENCES

DECIMALS

1. With numbers less than one unit from zero, round to 0, ± 0.5 or ± 1.
2. With numbers that are more than one unit from zero, round to the nearest integer.

FRACTIONS

1. With fractions less than one unit from zero, round to 0, $\pm\frac{1}{2}$ or ± 1.
2. With mixed numbers that are more than one unit from zero, round to the nearest integer.



EXAMPLE 1

Use estimation to simplify each expression.

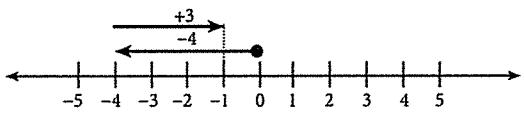
a. −4.23 + 2.8 **b. 0.94 − (−0.43)**

SOLUTIONS

a. Both numbers are more than one unit from zero. Each number should be rounded to the nearest integer and then added.

$-4.23 \approx -4$
$2.8 \approx 3$
$-4 + 3 = -1$

≈ is a symbol for "approximately"



$-4.23 + 2.8 \approx -1$

b. Both numbers are less than one unit from zero so the numbers should be rounded to the nearest 0.5.

Add the opposite.

$0.94 \approx 1$
$-0.43 \approx -0.5$

$1 - (-0.5) = 1 + 0.5 = 1.5$

$0.94 - (-0.43) \approx 1.5$

Extra Example 1

Estimate the value of each expression.

a) −7.79 + 10.12 2

b) −0.88 + (−0.14) −1

Teaching Tips

Estimation is an important skill for students to acquire so they can determine if answers are reasonable. Students often do not want to stop and think, "Does my answer make sense?" If they know quick methods for estimating, they will be more likely to check the reasonableness of their answers.

In the blue box, students are told to round to 0, ±0.5, or ±1. The ± symbol is read "positive or negative". Students will have to choose if their answer should be positive or negative. They will not write ±0.5 as an answer, but instead will write 0.5 or −0.5.

When the number line below the blue box says to round to the nearest half when numbers are between −1 and 1, it does not mean round to ±0.5, but rather any of the "half" values of 0, ±0.5 or ±1.

The **Explore!** shows some examples for why a student would want to estimate with decimals. If the **Explore!** is not done in class, it may be helpful to discuss how to estimate with money, pounds, lengths of wood, etc.

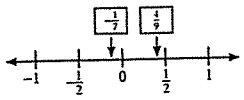
EXAMPLE 2

Estimate the value of each expression.

a. $-\frac{1}{7}+\frac{4}{9}$ b. $-1\frac{1}{3}-2\frac{7}{8}$

SOLUTIONS

a. Since each fraction is less than 1 unit from zero, round each to the nearest $\frac{1}{2}$.



$-\frac{1}{7}$ is closer to 0 than $-\frac{1}{2}$ $\quad -\frac{1}{7}\approx 0$

$\frac{4}{9}$ is closer to $\frac{1}{2}$ than 0 $\quad \frac{4}{9}\approx\frac{1}{2}$

$0+\frac{1}{2}=\frac{1}{2}$

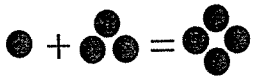
$-\frac{1}{7}+\frac{4}{9}\approx\frac{1}{2}$

b. Mixed numbers should be rounded to the nearest integer.

$-1\frac{1}{3}\approx -1$

$2\frac{7}{8}\approx 3$

Add the opposite. $-1-3=-1+(-3)=-4$



$-1\frac{1}{3}-2\frac{7}{8}\approx -4$

When rounding fractions less than one unit from zero, it is helpful to consider this information:

- If the numerator is very small compared to the denominator, it should be estimated as 0.
- If the numerator is about half of the denominator, it should be estimated as $\frac{1}{2}$ or $-\frac{1}{2}$.
- If the numerator is nearly as big as the denominator, it should be estimated as -1 or 1.

EXERCISES

1. Give two real-world situations where estimation may be used.

2. Write a two-number addition expression where:
a. both numbers would be rounded to the nearest integer.
b. both numbers would be rounded to the nearest half.

3. Determine if each statement is true or false. If the statement is false, give a counterexample.
a. All rational numbers are integers.
b. All fractions containing two integers are rational numbers.

Use estimation to simplify each expression.

4. 6.9 + 10.81

5. 0.07 + 0.8

6. −0.13 + (−0.63)

7. 3.24 − 9.17

8. −1.7 − (−5.6)

9. 0.4 − (−0.573)

10. 14.88 − 1.17

11. 37.1 − 6.74

12. −0.7 + 0.4

Extra Example 2

Estimate the value of each expression.

a) $\frac{8}{9}-\frac{11}{13}$ 0

b) $-4\frac{1}{4}+(-1\frac{2}{3})$ −6

Focused Assignment

Exercises 1, 3–9, 13, 16–21, 27, 29–32

Exercise Answers

1. Answers may vary.

2. a. Answers may vary.
   b. Answers may vary.

3. a. False; answers may vary.
   b. True

4. ≈ 18

5. ≈ 1

6. ≈ −0.5

7. ≈ −6

8. ≈ 4

9. ≈ 1

10. ≈ 14

11. ≈ 30

12. ≈ 0

REVIEW

Find each sum or difference. Write your answer in simplest form.

30. $\frac{5}{6}+\frac{2}{3}$ **31.** $4\frac{7}{10}-2\frac{4}{5}$ **32.** $\frac{5}{12}+\frac{3}{8}$

33. $\frac{3}{4}+\frac{2}{5}$ **34.** $\frac{7}{9}-\frac{1}{3}$ **35.** $3\frac{1}{4}+8\frac{1}{2}$

Find the value of each expression.

36. $5(2-6)+4$ **37.** $\frac{2(2+3)^2}{5}$ **38.** $(-2+11)^2-8\cdot 4$

Tic-Tac-Toe ~ Irrational Numbers

When you were younger, you learned about counting numbers in math class. As you have progressed in math you have learned about other classifications of numbers such as integers and rational numbers. Irrational numbers are another type of number you will work with in higher-level mathematics courses. Research irrational numbers to determine the following:

- How are irrational numbers different from rational numbers?
- When were irrational numbers first used?
- What are some common irrational numbers? What are they used for?
- Other interesting information about irrational numbers.

Write a 1–2 page paper that summarizes your findings. Cite all sources used.

Tic-Tac-Toe ~ Estimation Poetry

An acrostic poem is a special type of poem where the first letter of each line spells out a word. Write two acrostics using the word ESTIMATION. One acrostic poem should focus on situations where estimation of rational numbers is helpful. The other acrostic poem should be about situations where estimation of rational numbers may cause more harm than good.

30. $1\frac{1}{2}$

31. $1\frac{9}{10}$

32. $\frac{19}{24}$

33. $1\frac{3}{20}$

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

35. $11\frac{3}{4}$

36. -16

37. 10

38. 49

Exit Problems

Estimate the value of each expression.

1) $3.21 + 6.3 \quad \approx 9$

2) $-\frac{3}{7}+\frac{9}{10} \quad \approx \frac{1}{2}$

3) $8\frac{1}{4}-(-2\frac{2}{3}) \quad \approx 11$

4) $0.13 - 0.925 \quad \approx -1$

5) Matt bought $2\frac{1}{12}$ pounds of apples, $1\frac{5}{6}$ pounds of grapes and $4\frac{2}{3}$ pounds of potatoes. What was the approximate weight of Matt's purchases? ≈ 9 pounds

Communication Prompt

Describe a time when you used estimating in a situation outside of math class.

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Teacher Resource Binder

The Core Focus on Math Teacher Resource Binder includes a variety of supplemental material and assessments to be used with the corresponding student and teacher editions. The following provides suggestions for implementing the included materials in your classroom.

Worksheets by Block

On-Grade Level Worksheets *Formats*: Adobe PDF and Microsoft Word

The on-grade level worksheets are used to supplement each lesson in the student textbook. Each worksheet is single-sided and contains exercises similar to those in the Exercises section of the corresponding textbook lesson. The worksheets strengthen students' conceptual understanding and computational fluency.

The on-grade level worksheets may be used in a variety of ways to help students learn. A few examples are given below:

- group or independent practice in class
- tools for intervention when students need additional support
- homework

The worksheets are available as PDFs and Microsoft Word documents in both Spanish and English. The PDF versions are available online for parents and students to access. The Word documents on the disc in the binder may be modified. You may want to modify the worksheets for a variety of reasons:

- add more work space
- eliminate problems
- add additional problems
- change numbers in problems
- add review problems
- merge worksheets

Tiered Worksheets *Formats*: Adobe PDF and Microsoft Word

The tiered worksheets are single or double-sided and provide differentiated practice. Each tiered worksheet is written using shorter sentences and less complex terminology, with the exception of math vocabulary which is essential to understanding the concepts in each standard. The differentiated practice in the tiered worksheets include: (1) shorter problem sets, (2) more space to work, (3) exercises that use common numbers, (4) guidance on the steps needed to arrive at the solution, (5) organizational strategies and (6) simplified application situations.

The tiered worksheets may be used in a variety of ways to help students learn. A few examples are given below:

- introduction to a difficult topic which you plan to cover over multiple days
- guided practice
- differentiated assignments for different levels of learners
- pre-teach or reinforce concepts for struggling students in a small groups or as an activity

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Challenge Worksheets *Formats*: Adobe PDF and Microsoft Word

The challenge worksheets are single-sided worksheets that often go beyond the scope of the required Common Core Standards. They may challenge students through complex problems, advanced concepts that build from the lesson's target or more logical-mathematical thinking. The challenge worksheets are not to be used until students have acquired the target listed at the beginning of the lesson.

The challenge worksheets may be used in a variety of ways to help students learn. A few examples are given below:

- differentiated assignments for different levels of learners
- extension activities for high-achievers

Assessments by Block

On-Grade Level Assessments *Formats*: Adobe PDF and Microsoft Word

Based on the style of the Common Core assessments, the block assessments consist of a selected response items, constructed response items and a problem solving item(s). Similar to the worksheets, the tests may be modified when in Microsoft Word format. There are two forms (A and B) of each block assessment. Form A is available in Spanish. The problem solving question is the same for both forms. Teachers may choose to utilize one, two or all parts of each assessment depending on the length of the class period and the assessment purpose. In a 50-minute class period, a teacher should use no more than two parts of the assessment.

The selected response portion of each assessment could be used as a diagnostic assessment to gauge students' entry-level knowledge on the learning targets in the block. The results of students' diagnostic assessment will inform you of students' current proficiencies prior to instruction. Collecting pre- and post-assessment data can inform your teaching practice. You may find it helpful to analyze students' data from the block assessments as part of a professional learning community.

Tiered Assessments *Formats*: Adobe PDF and Microsoft Word

There are two forms (AT and BT) of the tiered block assessments. The tiered assessments are a differentiated version of the regular block assessments. The tiered assessments are differentiated in a variety of ways which may include any or all of the following:

- fewer problems
- more work space
- compatible numbers
- assessment items broken into smaller parts

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Exit Cards

The exit cards contain the exit questions found in the teacher's edition for each lesson as well as at the end of the corresponding slide show. The exit cards can be used as a formative assessment after a lesson has been taught. The exit cards were written to take the average student less than 5 minutes to complete.

Exit cards can be used in a variety of ways. One way to use the exit cards is to hand out the cards with 5-10 minutes left in the class period. Have students individually complete the questions. Collect the cards as students exit the classroom. Use the results of the assessment to guide lesson planning and to provide feedback for students, both individually and as a class. The results may be used to determine necessary interventions for students by class or within a professional learning community. Exit cards can also be used as entrance cards or as a review activity as a relay or at stations.

Formats: Adobe PDF and Microsoft Word

Self-Assessments

The Self-Assessments take the targets from the lessons in each block and place them in a format that allows students to self-assess their progress. Students may struggle with accurately assessing their own abilities. It may be helpful to model this process by creating sample scenarios for a given target and discuss with students whether or not the student is "Starting…", "Getting There…" or "Got It!"

If you allow two days for review, you may have the students complete the Block Review in the textbook and use the Self-Assessment to rate their current knowledge. The second day of review, students can use the results from the Self-Assessment to determine where they need further help. You may decide to create target station groups where students focus on their weaknesses and work to improve.

The Self-Assessment may also be used initially after a pre-test or after using Exit Cards related to the appropriate target(s). Students can then rate their understanding of each target again after completing more work directly related to the target or after completing questions from the block review.

Formats: Adobe PDF and Microsoft Word

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Resources

The resource section includes black line masters of the following:

- Grid Paper
- Number Lines
- Quadrant I Coordinate Planes
- Four-Quadrant Coordinate Planes
- Equation Mat
- Fraction Tile Template

Format: Adobe PDF

Slide Shows

A slide show that corresponds to each lesson is located on the disc in the front of the binder. The slide show contains the following:

- Warm-up questions and answers
- Lesson title and target
- Vocabulary
- Explore! activity
- Blue box information
- Examples, work and solutions
- Communication prompt
- Exit problems and solutions

Format: Microsoft Power Point

Lesson 3.3 ~ Subtracting Rational Numbers

Name_____ Period_____ Date_____

Find each difference. Write your answer in simplest form.

1. $-\frac{4}{9}-\frac{1}{9}$

2. $\frac{1}{8}-\left(-\frac{1}{2}\right)$

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

4. $8-5\frac{2}{3}$

5. $-\frac{3}{4}-\left(-\frac{1}{3}\right)$

6. $2\frac{1}{6}-3$

7. On a hike, William passed a sign that said his elevation was $20\frac{1}{2}$ feet above sea level. He hiked downhill for a while longer until his elevation had decreased by 28 feet. What is his new elevation?

8. Beth added $1\frac{1}{4}$ pounds of fruit to a fruit basket. Her son took $2\frac{3}{8}$ pounds of fruit out of the basket. What was the total change in pounds of fruit in the fruit basket?

Find each difference.

9. $6.2-(-5.9)$

10. $-0.1-8.3$

11. $6.94-(-12.5)$

12. $-0.208-(-0.47)$

13. $-3.8-7.2$

14. $10-16.5$

15. Cory's checking account had \$75.10 on Thursday. One of her checks was cashed on Friday and her account went down to −\$13.75. What was the value of the check that was cashed?

16. The boiling point of krypton is −244.1° F. The melting point of krypton is −251° F. What is the difference between the boiling point and the melting point?

Lección 3.3 ~ Restando Números Racionales

Nombre_____ Periodo_____ Fecha_____

Encuentra cada diferencia. Escribe tu respuesta en la forma más simple.

1. $-\frac{4}{9}-\frac{1}{9}$

2. $\frac{1}{8}-\left(-\frac{1}{2}\right)$

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

4. $8-5\frac{2}{3}$

5. $-\frac{3}{4}-\left(-\frac{1}{3}\right)$

6. $2\frac{1}{6}-3$

7. En una caminata, William pasó un letrero que indicaba que su altitud era de $20\frac{1}{2}$ pies sobre le nivel del mar. Caminó cuesta abajo por un rato más hasta que su altitud disminuyó por 28 pies. ¿Cuál es su nueva altitud?

8. Beth añadió $1\frac{1}{4}$ libras de fruta a una canasta de frutas. Su hijo tomó $2\frac{3}{8}$ libras de fruta fuera de la canasta. ¿Cuál fue el cambio en libras total de frutas en la canasta de frutas?

Encuentra cada diferencia.

9. $6.2-(-5.9)$

10. $-0.1-8.3$

11. $6.94-(-12.5)$

12. $-0.208-(-0.47)$

13. $-3.8-7.2$

14. $10-16.5$

15. La cuenta de cheques de Cory tenía \$75.10 el jueves. Uno de sus cheques fue cobrado el viernes y su cuenta bajo a −\$13.75. ¿Cuál fue el valor del cheque que fue cobrado?

16. El punto de ebullición de criptón es −244.1° F. El punto de fusión de criptón es −251° F. ¿Cuál es la diferencia entre el punto de ebullición y el punto de fusión?

Lesson 3.3T ~ Subtracting Rational Numbers

Name_____ Period_____ Date_____

Find each difference. Write your answer in simplest form.

1. $-\frac{4}{9}-\frac{3}{9}$ ⟶ Change the subtraction symbol to an addition symbol and add the opposite. ⟶ $-\frac{4}{9}+\left(-\frac{3}{9}\right)$

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

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

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

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

6. Betty added $1\frac{3}{4}$ pounds of nuts to a snack bowl. Her son took $2\frac{1}{8}$ pounds of nuts out of the bowl. What was the total change in pounds of nuts in the snack bowl?

a. Write an equation to represent the situation. $\square - \square =$

b. What was the total change in pounds of nuts in the snack bowl? Write your answer in a complete sentence.

Find each difference.

7. $4.2-(-2.7)$

8. $-1.3-5.4$

9. $4.8-(-10.5)$

10. $-0.2-(-0.4)$

11. $-2.85-7.1$

12. $8-12.3$

13. Kinsley's checking account had \$35.50 on Monday. One of her checks was cashed on Tuesday and her account went down to −\$10.25. What was the value of the check that was cashed?

Lesson 3.3C ~ Subtracting Rational Numbers

Name_____ Period_____ Date_____

Choose two numbers from the box that <u>subtract</u> to equal each description. You may only use each number once. Show your work to prove each answer.

$-1\frac{3}{8}$	3.72	5.1	$1\frac{1}{2}$	14.5
$2\frac{3}{4}$	$4\frac{5}{8}$	1.13	$-3\frac{3}{8}$	5.91
−4.2	$3\frac{1}{4}$	−5.6	−3.1	$1\frac{1}{6}$
$5\frac{1}{2}$	$-2\frac{1}{4}$	−0.98	−6.53	$7\frac{1}{6}$

1. A value greater than 10.

2. A decimal value that contains the digit "9" in the tenths place.

3. A mixed number that includes $\frac{1}{2}$.

4. A decimal value that has all odd digits.

5. A value between 4 and 5.

6. An integer.

7. A value equal to $-4\frac{1}{3}$.

8. A value between −2 and −3.

Lesson 3.1 ~ Estimating Sums and Differences

Name____ Period____ Date____

Estimate each decimal expression. Show all work.

1. $9.85 + 2.1 \approx$
   $10 + 2 \approx 12$

2. $0.9 + 0.08 \approx$
   $1 + 0 \approx 1$

3. $-0.54 + (-0.87) \approx$
   $-.5 + (-1) \approx -1.5$

4. $4.25 - 11.17 \approx$
   $4 + (-11) \approx -7$

5. $-3.88 - 7.7 \approx$
   $-4 + 8 \approx -12$

6. $0.62 - (-0.51) \approx$
   $.5 + .5 \approx 1$

7. Ethan bought a CD for \$12.95, a DVD for \$15.10 and a shirt for \$9.72. Approximately how much did he spend on his purchases? $12.95 + 15.10 + 9.72$
   $13 + 15 \approx 28 + 10 \approx 38$
   Ethan spent approximately \$38.

8. A storm was coming to town. In the first hour, the temperature changed −2.8° F. In the next hour it changed −4.1°. In the third hour, the temperature change was −5.2° F. What was the approximate change in temperature over the last three hours?
   $-2.8 + (-4.1°) + (-5.2°)$
   $-3 + (-4) \approx -12 + (-5) \approx -17°F$
   The temperature changed −17°F in the 3 hours.

Estimate each fraction expression. Show all work.

9. $\frac{9}{10} + \frac{7}{16} \approx$
   $1 + \frac{1}{2} \approx 1\frac{1}{2}$

10. $7\frac{3}{4} + 8\frac{1}{6} \approx$
    $8 + 8 \approx 16$

11. $8\frac{4}{5} + (-3\frac{9}{10}) \approx$
    $9 + (-4) \approx 5$

12. $-\frac{7}{8} - \frac{1}{15} \approx$
    $-1 + 0 \approx -1$

13. $\frac{8}{17} - \frac{6}{13} \approx$
    $\frac{1}{2} + -\frac{1}{2} \approx 0$

14. $-10\frac{1}{4} - 6\frac{1}{6} \approx$
    $-10 + -6 \approx -16$

15. Maria purchased four items in the bulk food section. She bought $1\frac{1}{6}$ pounds of oats, $3\frac{7}{8}$ pounds of flour, $4\frac{3}{16}$ pounds of sugar and $1\frac{7}{12}$ pounds of rice. Find the approximate weight of her purchases.
    $1\frac{1}{6} + 3\frac{7}{8} + 4\frac{3}{16} + 1\frac{7}{12}$
    $1 + 4 \approx 5 + 4 \approx 9 + 1\frac{1}{2} \approx 10\frac{1}{2}$
    Maria's purchase weight about $10\frac{1}{2}$

100% + 12

Lesson 3.1T ~ Estimating Sums and Differences

Name_____ Period_____ Date_____

Estimate each decimal expression. Show all work.

1. $8.8+1.1\approx$

   $\downarrow \quad \downarrow$

   $9 + 1 \approx 10$

   $-.5 + (-1) \approx -1.50$

2. $0.98+0.4\approx$

   $\downarrow \quad \downarrow$

   $1 + .5 \approx 1.5$

For numbers whose absolute value is less than one, round to the nearest 0.5.

3. $-0.49+(-0.97)\approx$ -

   0.49
   $+\ 0.97$
   1.46

4. $4.1-9.2\approx$

   $\downarrow \quad \downarrow$

   $4 + (-9) \approx (-5)$

5. $-2.95-7.12\approx$

   $\downarrow \quad \downarrow$

   $-3 + (-7) \approx -10$

6. $0.52-(-0.47)\approx$

   $\downarrow \quad \downarrow$

   $0.5 + .5 \approx 1$

7. Kelby measured the temperature of his hot chocolate. After the first minute the temperature had changed −2.2°. Five minutes later he checked the temperature again and it had changed −5.9°. What integer represents the change in temperature of his hot chocolate?

   a. Fill in the equation for this situation. $-2.2 + -5.9 \approx$

   b. Round each number. $-2 + (-6) \approx -8°$

   c. Solve and write your answer in a complete sentence.

   The temperature of the hot chocolate Decreased −8°.

Estimate each fraction expression. Show all work.

8. $\frac{9}{10}+\frac{4}{9}\approx$

   $\downarrow \quad \downarrow$

   $1 + \frac{1}{2} \approx 1\frac{1}{2}$

9. $5\frac{1}{4}+8\frac{5}{6}\approx$

   $\downarrow \quad \downarrow$

   $5 + 9 \approx 14$

Exit Cards

NAME: ____________________ PER: ____ LESSON 3.2

Find each sum.

1. $-8.2 + (-2.3)$

2. $-\frac{2}{9} + \frac{2}{3}$

3. $0.49 + (-0.6)$

4. $-1\frac{1}{2} + (-2\frac{1}{4})$

 Core Focus on Rational Numbers & Equations

NAME: ____________________ PER: ____ LESSON 3.2

Find each sum.

1. $-8.2 + (-2.3)$

2. $-\frac{2}{9} + \frac{2}{3}$

3. $0.49 + (-0.6)$

4. $-1\frac{1}{2} + (-2\frac{1}{4})$

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NAME: ____________________ PER: ____ LESSON 3.2

Find each sum.

1. $-8.2 + (-2.3)$

2. $-\frac{2}{9} + \frac{2}{3}$

3. $0.49 + (-0.6)$

4. $-1\frac{1}{2} + (-2\frac{1}{4})$

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NAME: ____________________ PER: ____ LESSON 3.2

Find each sum.

1. $-8.2 + (-2.3)$

2. $-\frac{2}{9} + \frac{2}{3}$

3. $0.49 + (-0.6)$

4. $-1\frac{1}{2} + (-2\frac{1}{4})$

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Core Focus on Rational Numbers & Equations

Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part I – Selected Response

1. Hans bought two DVDs. One was $14.89 and the other was $16.15. Approximately how much did he spend on the two DVDs?

A. $29
B. $30
C. $31
D. $32

2. Which of the following have an approximate value of 1? Circle all that apply.

A. $\frac{3}{4}+\frac{7}{8}$ B. $\frac{2}{5}+\frac{3}{7}$

C. $2\frac{5}{6}-1\frac{1}{9}$ D. $\frac{1}{6}-\frac{1}{10}$

E. $\frac{1}{12}+\frac{23}{25}$ F. $4\frac{1}{3}-2\frac{7}{8}$

3. What is the value of the expression below?

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

A. $-\frac{7}{8}$ B. $-\frac{5}{8}$

C. $\frac{5}{8}$ D. $\frac{7}{8}$

4. Aero had $27.88 in her account. She wrote a check for $30.45. What will her account balance be when the check is cashed?

A. −$58.33
B. −$2.57
C. $2.57
D. $58.33

5. Estimate the value of $44.3 \div 10.8$.

A. 3 B. 3.5

C. 4 D. 4.5

Justin always hits about $\frac{1}{3}$ of the pitches at batting practice. For numbers 6a – 6c, determine whether each statement is true or false.

6a. Justin got 61 pitches on Monday. He hit about 30 of the pitches. TRUE FALSE

6b. Justin hits more pitches than he misses at batting practice. TRUE FALSE

6c. Justin got 243 pitches last week. He hit approximately 80 of the pitches. TRUE FALSE

7. What is the value of the expression below?

$$-\frac{1}{6}\left(-\frac{3}{4}\right)$$

A. $-\frac{3}{10}$ B. $-\frac{1}{8}$

C. $\frac{1}{8}$ D. $\frac{3}{10}$

8. Lauren drank 5 glasses of ice tea. She drank a total of 62.5 ounces. How much did each glass hold?

A. 0.08 ounces
B. 12 ounces
C. 12.5 ounces
D. 312.5 ounces

Core Focus on Rational Numbers & Equations
Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part II – Constructed Response

Estimate the value of each expression. Show all work necessary to justify your answer.

1. $3\frac{2}{11}+5\frac{1}{10}\approx$ **2.** $0.07+0.97\approx$ **3.** $25.2\div 3.8\approx$

4. Manny's dog gained $\frac{1}{8}$ pound in Week 1. In Week 2, the dog gained $\frac{9}{10}$ pound. In Week 3, the dog gained $\frac{5}{12}$ pound. Approximately how much did the dog gain over the three weeks?

5. Carla raises cows. Approximately $\frac{1}{5}$ of her cows are brown. She owns 74 cows. About how many of her cows are brown? Explain your process for finding the estimate.

Find each sum, difference, product or quotient. Write each answer in simplest form.

6. $\frac{1}{5}-\left(-\frac{1}{10}\right)$ **7.** $\frac{2}{3}\cdot\left(-\frac{1}{4}\right)$ **8.** $-\frac{3}{8}\div\left(-\frac{1}{4}\right)$

9. $-12.4+(-3.8)$ **10.** $-1\frac{1}{2}-\left(-2\frac{3}{4}\right)$ **11.** $-24.8\div 8$

12. $-2\frac{1}{5}\left(-1\frac{2}{3}\right)$ **13.** $0.79-1.32$ **14.** $0.4(6.6)$

15. Jerry had 78.4% in math class. He did not do well on his last test and his grade changed by −3.5%. What is his new grade?

16. Cara had a gift card for a local movie theater. Each time she went to the movies, the balance remaining on the card decreased by $7.50. What number represents the total change in value on her card after she went to the movies 6 times? Explain how you know your answer is correct.

17. Gina's sunflower plant grows $1\frac{3}{4}$ inches each week. How much will the plant have grown after 8 weeks? Show all work necessary to justify your answer.

18. Jermaine incorrectly found the sum of three numbers. His work is shown below. Explain where he made his mistake. Find the correct sum.

Problem: -3.9 + 4.2 + 10.1

-3.9
+4.2
1.1
+10.1
11.2

Core Focus on Rational Numbers & Equations
Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part III – Problem Solving

The local diner's MONDAY SPECIAL is meatloaf and mashed potatoes. A family ordered 4 MONDAY SPECIALS and the total came to $26.80. They had a coupon for $5.60 off their total purchase. How much did they pay per meal?

Core Focus on Rational Numbers & Equations
Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part I – Selected Response

1. Caleb bought two CDs. One was $9.89 and the other was $11.05. Approximately how much did he spend on the two DVDs?

A. $20
B. $21
C. $22
D. $23

2. Which of the following have an approximate value of 1? Circle **ALL** that apply.

A. $\frac{3}{4}+\frac{7}{8}$ B. $\frac{6}{7}+\frac{3}{5}$

C. $2\frac{5}{6}-1\frac{1}{9}$ D. $\frac{1}{6}-\frac{1}{10}$

E. $\frac{1}{12}+\frac{23}{25}$ F. $4\frac{1}{3}-2\frac{7}{8}$

3. What is the value of the expression below?

$$\frac{1}{2}+\left(-\frac{1}{8}\right)$$

A. $-\frac{5}{8}$ B. $-\frac{3}{8}$

C. $\frac{3}{8}$ D. $\frac{5}{8}$

4. Cathy had $28.75 in her account. She wrote a check for $35.95. What will her account balance be when the check is cashed?

A. −$64.70
B. −$7.20
C. $7.20
D. $64.70

5. Estimate the value of $31.3 \div 7.9$.

A. 3 B. 3.5

C. 4 D. 4.5

Rico is able to hit about $\frac{1}{4}$ of the pitches at batting practice. For numbers 6a – 6c, determine whether each statement is true or false.

6a. Rico got 61 pitches on Monday. He hit about 15 of the pitches. TRUE FALSE

6b. Rico hits more pitches than he misses at batting practice. TRUE FALSE

6c. Rico got 198 pitches last week. He hit approximately 80 of the pitches. TRUE FALSE

7. What is the value of the expression below?

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

A. $-\frac{1}{2}$
B. $-\frac{2}{9}$
C. $\frac{2}{9}$
D. 1

8. Sue drank 3 glasses of juice. She drank a total of 24.3 ounces. How much did each glass hold?

A. 72.9 ounces
B. 27.3 ounces
C. 21.3 ounces
D. 8.1 ounces

Core Focus on Rational Numbers & Equations
Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part II – Constructed Response

Estimate the value of each expression. Show all work necessary to justify your answer.

1. $4\frac{1}{10}+6\frac{8}{9}\approx$

2. $0.48+0.54\approx$

3. $34.2\div 6.9\approx$

4. Shea raises goats. Approximately $\frac{1}{3}$ of her goats have spots. She owns 26 goats. About how many of her goats have spots? Explain your process for finding the estimate.

Find each sum, difference, product or quotient. Write each answer in simplest form.

5. $\frac{1}{4}-\left(-\frac{3}{8}\right)=$

6. $\frac{5}{6}\cdot\left(-\frac{2}{3}\right)=$

7. $-41.6\div -8=$

8. $-8.2+(-1.5)=$

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

10. $-0.4(2.1)=$

11. Maddie had 86.7% in math class. She did not do well on her last test and her grade changed by −2.3%. What is her new grade? Show all work necessary to justify your answer.

12. Stacie's pepper plant grows $1\frac{1}{4}$ inches each week. How much will the plant have grown after 3 weeks? Show all work necessary to justify your answer.

13. Pete incorrectly found the sum of three numbers. His work is shown below. Explain where he made his mistake. Find the correct sum.

Problem: -1.4 + 3.3 + 10.7

-1.4
+3.3
2.7
+10.7
13.4

Core Focus on Rational Numbers & Equations
Block 3 Test ~ Rational Number Operations

Name_____ Period_____ Date_____

Part III – Problem Solving

The local diner's MONDAY SPECIAL is meatloaf and mashed potatoes. A family ordered 4 MONDAY SPECIALS and the total came to $26.80. They had a coupon for $5.60 off their total purchase. How much did they pay per meal?

Block 3 ~ Rational Number Operations **Name**_____ **Per**_____
Self-Assessment

Track your understanding.

Lesson #	Target	Progress (shade this in)
3.1	I can estimate sums and differences of rational numbers.	Starting… Getting there… Got it!!
3.2	I can add positive and negative fractions and decimals.	Starting… Getting there… Got it!!
3.3	I can subtract positive and negative fractions and decimals.	Starting… Getting there… Got it!!
3.4	I can estimate products and quotients of rational number operations.	Starting… Getting there… Got it!!
3.5	I can find products of positive and negative fractions and decimals.	Starting… Getting there… Got it!!
3.6	I can find quotients of positive and negative fractions and decimals.	Starting… Getting there… Got it!!

TOPIC/OBJECTIVE: Estimating Sums and Differences

CONTENT/CLASS: math 7th grade 3-1

p.g.s 75-77

NAME:

CLASS/PERIOD: math

DATE: 11/ /2016

ESSENTIAL QUESTION: How Do I estimate Sums and Differences of Rational Numbers?

QUESTIONS:	NOTES:
what are Rational Numbers?	Rational Numbers are Integers, Fractions, mixed Numbers, and Decimals * If it can be written as a fraction than its a rational Number.
what Does Estimate or Approximately mean? ≈	* It means to round. In this particular unit You will be rounding all Decimals to nearest "whole number" + or − (positive, negative) and/or to nearest "half" + or − (positive, negative)
	* If fractions.... Round to nearest $\pm 1, \pm \frac{1}{2}$, or 0
examples →	$-4.23 + 2.8 \approx$ $-4 + 3 \approx -1$ $0.94 - (-0.43)$ $1 - (-.5)$ (K, C, C) $1 + (+.5) \approx 1.5$
	$6.9 + 10.81$ $7 + 11 \approx 18$ $0.07 + 0.8$ $0 + 1 \approx 1$

SUMMARY:

QUESTIONS:

NOTES:

Estimating Decimal's continued →

$-0.13 + (-0.63)$

$0 + (-.5) \approx -.5$

$3.24 - 9.17$

$3 - 9$

$3 + (-9) \approx -6$

Estimating fractions

$\frac{1}{8} + \frac{5}{11}$

$0 + \frac{1}{2} \approx \frac{1}{2}$

$4\frac{1}{3} + 5\frac{5}{6}$

$4 + 6 \approx 10$

$9\frac{4}{5} + (-2\frac{7}{9})$

$10 + (-3) \approx 7$

$-\frac{3}{5} - \frac{2}{13}$

$-\frac{1}{2} - 0 \approx -\frac{1}{2}$

$\frac{7}{15} - \frac{5}{12}$

$\frac{1}{2} - \frac{1}{2} \approx 0$

$10\frac{4}{11} - 13\frac{1}{6}$

$10\frac{1}{2} - 13$

$10\frac{1}{2} + (-13) \approx -2\frac{1}{2}$

SUMMARY:

CORNELL NOTES

TOPIC/OBJECTIVE: Adding Rational Numbers

CONTENT/CLASS: math 7th grade [3-2]

Pgs 580-582

NAME:

CLASS/PERIOD: math

DATE: 11/ /2016

ESSENTIAL QUESTION: How do I ADD positive and negative fractions and Decimals?

QUESTIONS:	NOTES:
How Do I Add Integers or Rational Numbers? Lesson (2-2)	* Think Money $$ $ $ [P] + [P] = [P] [P] + [n] = [P] [N] + [N] = [N] [N] + [P] = [N]
What Does a negative fraction look like?	$-\frac{1}{4}$ or $\frac{-1}{4}$ or $\frac{1}{-4}$ * Negative sign can be written in all 3 ways but 1st way is most common way to display!
How do I ADD Positive and Negative Fractions?	Steps 1. Rewrite all Mixed numbers as improper fractions 2. Rewrite fractions using the (lcm). If fractions are negative, place the negative sign on the number in the numerator. 3. Follow the Addition of Integer Rules 4. Make sure fraction is simplified and if answer negative, place negative sign in front of your answer.
Examples →	$-\frac{5}{6}+\frac{1}{3} \rightarrow \frac{-5}{6}+\frac{1\cdot2}{3\cdot2} \rightarrow \frac{-5}{6}+\frac{2}{6}=-\frac{3}{6}=$

SUMMARY:

6: 6, lcm
3: 3, 6

$-5\frac{1}{2}+1\frac{1}{3} \rightarrow \frac{-11}{2}+\frac{4}{3} \rightarrow \frac{-11\cdot3}{2\cdot3}+\frac{4\cdot2}{3\cdot2} \rightarrow \frac{-33}{6}+\frac{8}{6}-\frac{25}{6} \rightarrow -4\frac{1}{6}$

2: 2, 4, 6 lcm

QUESTIONS: | NOTES:

more Examples →

$-\frac{7}{10} + \left(-\frac{1}{10}\right) \rightarrow -\frac{7}{10} + -\frac{1}{10} \rightarrow \frac{-8 \div 2}{10 \div 2} = -\frac{4}{5}$

↑ GCF

$-1\frac{1}{3} + \left(-2\frac{5}{6}\right) \rightarrow \frac{-4 \cdot 2}{3 \cdot 2} + \frac{-17}{6} \rightarrow \frac{-8}{6} + \frac{-17}{6} = \frac{-25}{6} = -4\frac{1}{6}$

3: 3, 6
6: 6 LCM

How Do I Add Positive and Negative Decimals?

Steps

1. Determine the sign of the answer (use Absolute value)
2. Find the sum
   A. If both decimal numbers are positive or negative, Line-up decimal points and add them
   B. If decimal numbers have different signs, subtract the lesser absolute value from the greater absolute value and use the sign of the decimal number that had greater absolute value.

★ Line-up Decimal Points!!!

Examples →

$-2.6 + 4.1 \rightarrow$

$$\begin{array}{r} \overset{3}{\cancel{4}}.{}^{1}1 \\ -\ 2.6 \\ \hline 1.5 \end{array}$$

← 4.1 has greater absolute value so Answer ~~will be positive. Subtract~~ bigger from smaller because they have different signs.

$-0.41 + (-3.5)$

$$\begin{array}{r} -0.41 \\ +\ -3.50 \\ \hline -3.91 \end{array}$$

← Both are negative, so I Just ADD them, answer will still be negative.

Put in "zero" so they have same number of digits.

$-0.093 + 0.14 \rightarrow$

$$\begin{array}{r} 0.140 \\ -\ 0.093 \\ \hline .047 \end{array}$$

← Answer is positive because 0.14 had greater absolute value

SUMMARY:

CORNELL NOTES

TOPIC/OBJECTIVE: Subtracting Rational Numbers

CONTENT/CLASS: math 7th grade [3-3]

P:gs 84-86

NAME:

CLASS/PERIOD: math

DATE: 11/ /2016

ESSENTIAL QUESTION: How DO I subtract positive and negative fractions and Decimals?

QUESTIONS:	NOTES:
When subtracting rational numbers Do I Keep, change, change?	Yes! When subtracting Rational Numbers (remember an integer is a rational number) simply Keep the first sign, change the sign, change the sign.
once I've changed subtraction to addition do I follow rules for Adding fractions and decimals?	Yes! once you Keep, change, change do the same thing you DID in [3-2]
Example →	$-6\frac{1}{3} - 2\frac{1}{2}$ (Keep, Change, Change)
	$-6\frac{1}{3} + -2\frac{1}{2}$
	$\frac{-19}{3} + \frac{-5}{2}$ ← change to improper fractions
	3: 3, 6 / 2: 2, 4, 6 LCM ← Find LCM to make Like fractions
	$\frac{-19\cdot 2}{3\cdot 2} + \frac{-5\cdot 3}{2\cdot 3} \rightarrow \frac{-38}{6} + \frac{-15}{6} = \frac{-53}{6} = \left(-8\frac{5}{6}\right)$

SUMMARY:

$$\frac{3}{8} - \left(-\frac{1}{8}\right) \rightarrow \frac{3}{8} + \left(+\frac{1}{8}\right) = \frac{4\div 4}{8\div 4} = \left(\frac{1}{2}\right)$$

QUESTIONS:

NOTES:

More Examples

$-\frac{1}{9} - \frac{2}{3} \rightarrow -\frac{1}{9} + \frac{-2}{3} \rightarrow -\frac{1}{9} + \frac{-2 \cdot 3}{3 \cdot 3} \rightarrow \frac{-1}{9} + \frac{-6}{9} = \frac{-7}{9}$

3 : 3, 6, 9 LCM
9 : 9

K C C

$-8 - 5\frac{1}{4} \rightarrow -8 + \left(-5\frac{1}{4}\right) \rightarrow \frac{-8}{1} + \frac{-21}{4}$

Turn whole numbers into fractions by putting a one underneath them.

$\frac{-8 \cdot 4}{1 \cdot 4} + \frac{-21}{4}$ $\quad$ 1 : 1, 2, 3, 4
4 : 4 LCM

$\frac{-32}{4} + \frac{-21}{4} = \frac{-53}{4} = -13\frac{1}{4}$

Decimals Examples →

K C C

$7.52 - (-4.3) \rightarrow 7.52 + (+4.3) \rightarrow 7.52 + 4.30 = 11.82$

K C C

$-0.6 - 3.1 \rightarrow -0.6 + -3.1 \rightarrow -0.6 + -3.1 = -3.7$

K C C

$5.4 - 6.9 \rightarrow 5.4 + -6.9$

6.9 ← 6.9 on top because it has greater Absolute value! And Subtract
$-\ 5.4$
$-\ 1.5$

Answer is negative because −6.9 had greater Absolute value to begin with!

SUMMARY:

CORNELL NOTES

TOPIC/OBJECTIVE: Estimating Products & Quotients

NAME:

CONTENT/CLASS: math 7th grade 3-4

CLASS/PERIOD: math

DATE: 11/ /2016

D:95 88-89

ESSENTIAL QUESTION: How Do I estimate products and quotients of Rational Numbers?

QUESTIONS:	NOTES:
What are compatible Numbers?	Compatible Numbers are numbers that are easy to mentally compute (figure out in your head)
Estimate? ≈	Remember estimate means comes close to original amount or answer.
DO I have to change one number or both?	* Not every number must be changed in an expression when estimating
What are the steps???	Steps 1. Substitute compatible Number(s) for one or more numbers. 2. Find the value (ANSWER) using your compatible numbers.
Decimal Examples →	$51.2 \div 6.94$; $49.6 \div (-10.4)$
Start with Divisor! Then based off that change, find a compatible # for dividend!	↓second ↓1st ; ↓ ↓1st $49 \div 7$ (≈ 7) ; $50 \div (-10)$ (≈ -5)

SUMMARY:

$0.25(41.2)$ (2m)

↓ ↓

$.25$ (40.0)

$40 \times 25 = 200 + 800 = 1000$ (≈ 10)

QUESTIONS:

NOTES:

Fraction Examples →

$-\frac{1}{4}\left(23\frac{2}{7}\right)$

↓ 1st

$-\frac{1}{4}(24)$

Start with second number and change it to the nearest multiple of the denominator. In this case it's a (-4) and closest would be 24

$-\frac{1}{4} \cdot \frac{24}{1}$ (x ↓, x ↑)

$\frac{-24}{4} \approx -6$

$53\frac{7}{8} \div 5\frac{1}{4}$

↓ 2nd ↓ 1st

$55 \div 5 \approx 11$

start with second number, then find a number it will be compatible with!

$\frac{2}{3}(9.4)$

↓ 1st

~~10~~ or 9

Nine because it's compatible with 3 the denominator.

$\frac{2}{3} \cdot \frac{9}{1} = \frac{18}{3} \approx 6$

$83\frac{1}{4} \div 2$

↓ 2nd ↓ 1st

$84 \div 2$

≈ 42

NO need to change 2 it's a whole number so change second based upon it's compatibility with 2.

SUMMARY:

CORNELL NOTES

TOPIC/OBJECTIVE: multiplying Rational Numbers

CONTENT/CLASS: math 7th grade [3-5]

P.gs 92-93

NAME:

CLASS/PERIOD: math

DATE: 11 / / 2016

ESSENTIAL QUESTION: How Do I find the products of positive and negative fractions and Decimals?

QUESTIONS:	NOTES:
	+ (+) − (−)
Are the integer and rational number rules the same when multiplying?	Yes! "Like signs" and Product will be = Positive "un-Like signs" and Product will be = Negative − (+) + (−)
what are the steps?	steps 1. Determine the sign of the product • same sign = positive • not same sign = Negative 2. Find the product. • Fractions: change mixed numbers to I. fracti * all negative fractions (−) negative sign goes with numerator. * To multiply fractions Tops × Tops / Bottoms Bottoms
Examples →	$\frac{4}{9}\left(-\frac{3}{10}\right) \rightarrow \frac{4}{9} \cdot \frac{-3}{10} \rightarrow \frac{-12 \div 6}{90 \div 6} = \left(-\frac{2}{15}\right)$ (× above, × below)
* simplify	
* You can cross simplify if you want!	12: 4·3, 2·3 — 90: 45·2, 9·5, 3·3 — 2·3 = 6 GCF

SUMMARY:

QUESTIONS:

NOTES:

$\overset{+4}{16} \times 8 = 128$ $\quad \overset{+4}{15} \times 8 = 120$

more Examples →

$-3\frac{1}{5}\left(-2\frac{2}{3}\right) \rightarrow \frac{-16}{5} \cdot \frac{-8}{3} = \frac{+128}{+15} = 8\frac{8}{15}$

n x n = Positive

$\overset{+2}{17} \times 4 = 68$ $\quad 8 \times 8 = 64$

$-4\left(2\frac{1}{8}\right) \rightarrow \frac{-4}{1} \cdot \frac{17}{8} \rightarrow \frac{-68}{8} = -8\frac{4}{8} = -8\frac{1}{2}$

n x P = Negative

↑ simplify fraction

Decimal Examples →

2 moves

Think whole numbers

$5.2(-0.16) \rightarrow \overset{+1}{52} \times 16 = 312 \rightarrow -3.12 = -3.12$

P x N = negative

1 move

$-10.1(-2)$

$101 \times 2 = 202 \rightarrow 20.2 = 20.2$

N x N = Positive

3 moves

$1.25(2.5)$

$\overset{+1}{\overset{+1}{\overset{+2}{125}}} \times 25$

625

$+2500$

$3125 = 3.125$

P x P = Positive

SUMMARY:

CORNELL NOTES

TOPIC/OBJECTIVE: Dividing Rational Numbers

NAME:

CONTENT/CLASS: math 7th grade [3-6]

CLASS/PERIOD: math

DATE: 11 / / 2016

Pgs 97-98

ESSENTIAL QUESTION: How Do I find the quotients of positive and Negative fractions and decimals?

QUESTIONS:	NOTES:
Are the integer and rational number rules the same when Dividing?	Yes! $\frac{+}{+}$ or $+ \div +$ Like signs = Positive
	$\frac{-}{-}$ or $- \div -$ Like signs = Positive
	$\frac{-}{+}$ or $- \div +$ Unlike signs = Negative
What are the steps?	steps
	1. Determine the sign of the quotient
	• Same sign = Positive
	• Not same sign = Negative
	2. Find the quotient.
	• Follow rules for working with mixed Numbers, Dividing, and simplifying
	• Follow rules for Dividing Decimals
Examples →	$-5\frac{2}{3} \div (-4) \rightarrow \frac{-17}{3} \div \frac{-4}{1} \rightarrow \frac{-17}{3} \cdot \frac{1}{-4}$ (K C F)
	$\frac{-17}{3} \cdot \frac{1}{-4} = \frac{-17}{-12} = 1\frac{5}{12}$ (× ×)

SUMMARY:

QUESTIONS:

NOTES:

more Examples →

K C F

$\frac{2}{3} \div \left(-\frac{5}{7}\right) \rightarrow \frac{2}{3} \cdot \frac{-7}{5} = \frac{-14}{15}$

P ÷ N = negative

K C F

$-\frac{2}{5} \div \left(-\frac{7}{10}\right) \rightarrow \frac{-2}{5} \cdot \frac{-10}{7} = \frac{20 \div 5}{35 \div 5} = \frac{4}{7}$

Decimal Examples →

P ÷ N = Negative Dividend Divisor

$9.36 \div (-5.2) \rightarrow 9.36 \div (-5.2)$

$$\begin{array}{r} 01.8 \\ 52\overline{)93.6} \\ -52\downarrow \\ \hline 416 \\ -416 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 52 \\ \times\ 8 \\ \hline 416 \end{array}$$

$= -01.8$

$-165 \div (-7.5) \rightarrow 1650 \div (-75) \rightarrow$

$$\begin{array}{r} 0022 \\ 75\overline{)1650} \\ -150\downarrow \\ \hline 150 \end{array}$$

N ÷ N = Positive

$= +22$

SUMMARY: