Common Core State Standards

CC.7.NS.1 - Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

CC.7.NS.2 - Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.

CC.7.NS.3 - Solve real-world and mathematical problems involving the four operations with rational numbers.

CC.7.EE.4 - Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

Scope and Sequence

Day 1  Lesson 2-1  Day 10  Lesson 2-5
Day 2  Lab  Day 11  Lesson 2-5
Day 3  Lesson 2-2  Day 12  Quiz
Day 4  Lesson 2-2  Day 13  Lesson 2-6
Day 5  Lab  Day 14  Lesson 2-6
Day 6  Lesson 2-3  Day 15  Lesson 2-7
Day 7  Lesson 2-3  Day 16  Lesson 2-7
Day 8  Lesson 2-4  Day 17  Review
Day 9  Lesson 2-4  Day 18  Test
### IXL Modules

**SMART Score of 80 is required**  
Due the day of the exam

<table>
<thead>
<tr>
<th>Lesson</th>
<th>7.B.1</th>
<th>Understanding integers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson</td>
<td>7.B.2</td>
<td>Integers on number lines</td>
</tr>
<tr>
<td>Lesson 2-3</td>
<td>7.B.3</td>
<td>Graph integers on number lines</td>
</tr>
<tr>
<td>Lesson 2-3</td>
<td>7.B.4</td>
<td>Absolute value and opposite integers</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.1</td>
<td>Integer addition and subtraction rules</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.2</td>
<td>Add and subtract integers using counters</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.3</td>
<td>Add and subtract integers</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.4</td>
<td>Complete addition and subtraction equations with integers</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.5</td>
<td>Add and subtract integers: word problems</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.6</td>
<td>Integer multiplication and division rules</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.7</td>
<td>Multiply and divide integers</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.8</td>
<td>Complete multiplication and division equations with integers</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>7.C.9</td>
<td>Evaluate numerical expressions involving integers</td>
</tr>
<tr>
<td>Lesson 5</td>
<td>7.T.5</td>
<td>Solve one-step equations</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>7.H.2</td>
<td>Convert between decimals and fractions or mixed numbers</td>
</tr>
<tr>
<td>Lesson 7</td>
<td>7.H.4</td>
<td>Compare rational numbers</td>
</tr>
<tr>
<td>Lesson 7</td>
<td>7.H.5</td>
<td>Put rational numbers in order</td>
</tr>
</tbody>
</table>
Lesson 2-1
Integers

Warm-Up

Vocabulary

The opposite of a number is the same ____________ from 0 on a number line as the original number, but on the ____________ ____________ of 0. Zero is its own opposite.

The integers are a set of ____________ numbers and their ____________. By using integers, you can express elevations above, below, and at sea level. Sea level has an elevation of _____ feet.

Remember!
The whole numbers are the counting numbers and zero: 0, 1, 2, 3, . . . .
Examples: Graphing Integers and Their Opposites on a Number Line

Graph the integer -7 and its opposite on a number line.

\[\begin{array}{c}
-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 \\
\end{array}\]

Graph the integer -5 and its opposite on a number line.

\[\begin{array}{c}
-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 \\
\end{array}\]

You can compare and order integers by graphing them on a number line. Integers ____________ in value as you move to the ____________ along a number line. They ____________ in value as you move to the ____________.

Remember!

The symbol < means “is less than,” and the symbol > means “is greater than.”

Examples: Graphing Integers and Their Opposites on a Number Line

Compare the integers. Use < or >.

\[\begin{array}{c}
4 \square -4 \\
-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 \\
\end{array}\]

\[\begin{array}{c}
-15 \square -9 \\
\end{array}\]
Examples: Ordering Integers Using a Number Line

Use a number line to order the integers from least to greatest.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -3 | 6 | -5 | 2 | 0 | -8 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| -5 | 4 | -3 | 2 | -1 | -2 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

A number’s **absolute value** is its ____________ ____________ ____________ on a number line. Since distance can ____________ be negative, absolute values are never negative. They are ____________ positive or zero.
Examples: Finding Absolute Value

Use a number line to find each absolute value.

|8|

|−12|

|3|

|−9|
Lesson 2-2
Adding Integers

Warm-Up

Examples: Modeling Integer Addition

Use a number line to find each sum

-7 + (-4)

-12 + 19

-4 + (-5)

-7 + 12
Adding Integers

- To add two integers with the same sign:
  Find the ___________ of their absolute values. Use the sign of the two integers.

- To add two integers with different signs:
  Find the ____________ of their absolute values. Use the sign of the integer with
  the ____________ absolute value.

**Helpful Hint**
When adding integers, think: if the signs are the same, find the sum. If the signs are different, find the difference.

**Examples: Adding Integers Using Absolute Values**

Find each sum.

-4 + 8

23 + (-35)

-5 + 3

-13 + (-24)
**Examples: Evaluating Expressions with Integers**

Evaluate $x + y$ for $x = -42, y = 71$

Evaluate $x + y$ for $x = -24, y = 17$

**Examples: Application**

The jazz band’s income from a bake sale was $286. Expenses were $21. Use integer addition to find the band’s total profit or loss.

The French Club was raising money for a trip to Washington D.C. Their car wash raised $730. They had expenses of $52. Use integer addition to find the club’s total profit or loss.
Lesson 2-3
Subtracting Integers

Warm-Up

You can model the difference between two integers by using a number line. When you subtract a positive number, the difference is ____________ than the original number, so you move to the ____________. To subtract a negative number, move to the ____________.

**Helpful Hint**

If the number being subtracted is less than the number it is being subtracted from, the answer will be positive. If the number being subtracted is greater, the answer will be negative.
### Examples: Modeling Integer Subtraction

Use a number line to find each difference.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Number Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 1</td>
<td><img src="image1" alt="Number Line for 4 - 1" /></td>
</tr>
<tr>
<td>-3 - 1</td>
<td><img src="image2" alt="Number Line for -3 - 1" /></td>
</tr>
<tr>
<td>-2 - (-4)</td>
<td><img src="image3" alt="Number Line for -2 - (-4)" /></td>
</tr>
<tr>
<td>3 - 2</td>
<td><img src="image4" alt="Number Line for 3 - 2" /></td>
</tr>
<tr>
<td>-2 - 4</td>
<td><img src="image5" alt="Number Line for -2 - 4" /></td>
</tr>
<tr>
<td>-4 - (-2)</td>
<td><img src="image6" alt="Number Line for -4 - (-2)" /></td>
</tr>
</tbody>
</table>
Addition and subtraction are ____________ operations...they “undo” each other. Instead of subtracting a number you can add its opposite.

**Examples: Subtracting Integers by Adding the Opposite**

Find each difference.

- $5 - (-2)$
- $-3 - 7$
- $-1 - (-8)$
- $4 - 2$
- $-2 - (-6)$
Examples: Evaluating Expressions with Integers

Evaluate $x - y$ for each set of values.

$x = -3$ and $y = 2$

$x = 4$ and $y = -6$

$x = -4$ and $y = -3$

$x = -4$ and $y = 5$

Examples: Temperature Application

Find the difference between $32^\circ F$ and $-10^\circ F$
Find the difference between 8°F and -5°F

Lesson 2-4
Multiplying and Dividing Integers

Warm-Up

Examples: Multiplying Integers Using Repeated Addition

Use a number line to find each product.

-7 · 2

-8 · 3

-3 · 2
Multiplying and Dividing Two Integers

If the signs are the ____________ your answer will be ____________.
If the signs are ____________ your answer will be ____________.

Examples: Multiplying Integers
Find each product.

<table>
<thead>
<tr>
<th>-6 \cdot (-5)</th>
<th>-2 \cdot (-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4 \cdot 7</td>
<td>-3 \cdot 5</td>
</tr>
</tbody>
</table>

Examples: Dividing Integers
Find each quotient.

<table>
<thead>
<tr>
<th>35 \div (-5)</th>
<th>-12 \div 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>-32 \div (-8)</td>
<td>45 \div (-9)</td>
</tr>
</tbody>
</table>
Examples: Averaging Integers

Mrs. Johnson kept track of a stock she was considering buying. She recorded the price change each day. What was the average change per day?

<table>
<thead>
<tr>
<th>Day</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Change ($)</td>
<td>−$1</td>
<td>$3</td>
<td>$2</td>
<td>−$5</td>
<td>$6</td>
</tr>
</tbody>
</table>

Mr. Reid kept track of his blood sugar daily. He recorded the change each day. What was the average change per day?

<table>
<thead>
<tr>
<th>Day</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Change</td>
<td>−8</td>
<td>2</td>
<td>4</td>
<td>−9</td>
<td>6</td>
</tr>
</tbody>
</table>
Lesson 2-5
Solving Equations Containing Integers

Warm-Up

Vocabulary

Inverse Property of Addition - The sum of a number and its opposite, or additive inverse is 0.

Examples: Solving Addition and Subtraction Equations

Solve each equation. **Check each answer!**

-6 + x = -7

Check:
<table>
<thead>
<tr>
<th>Equation</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>( p + 5 = -3 )</td>
<td>Check:</td>
</tr>
<tr>
<td>( y - 9 = -40 )</td>
<td>Check:</td>
</tr>
<tr>
<td>( -3 + x = -9 )</td>
<td>Check:</td>
</tr>
<tr>
<td>( q + 2 = -6 )</td>
<td>Check:</td>
</tr>
<tr>
<td>( y - 7 = -34 )</td>
<td>Check:</td>
</tr>
</tbody>
</table>
Examples: Solving Multiplication and Division Equations

Solve each equation. Check each answer!

<table>
<thead>
<tr>
<th>Equation</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{b}{5} = 6 )</td>
<td></td>
</tr>
<tr>
<td>(-400 = 8y)</td>
<td></td>
</tr>
<tr>
<td>( \frac{c}{4} = -24 )</td>
<td></td>
</tr>
<tr>
<td>(-200 = 4x)</td>
<td></td>
</tr>
</tbody>
</table>

Examples: Business Application

In 2003, a manufacturer made a profit of $300 million. This amount was $100 million more than the profit in 2002. What was the profit in 2002?
This year the class bake sale made a profit of $243. This was an increase of $125 over last year. How much did they make last year?

Lesson 2–6
Equivalent Fractions and Decimals

Warm-Up

To convert a fraction to a decimal, divide the _________ by the _________.

Examples: Writing Fractions and Decimals

Write each fraction as a decimal. Round to the nearest hundredth, if necessary.

\[
\begin{align*}
\frac{1}{4} & & \frac{9}{5} \\
\end{align*}
\]
Decimals that come to an end are called ____________ decimals.

Decimals that have a pattern that repeats forever are called ____________ decimals.

**Examples: Using Mental Math to Write Fractions as Decimals**

Write each fraction as a decimal.

<table>
<thead>
<tr>
<th>( \frac{4}{5} )</th>
<th>( \frac{37}{50} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{6}{5} )</td>
<td>( \frac{7}{3} )</td>
</tr>
</tbody>
</table>

**Examples: Writing Decimals as Fractions**

Write each decimal as a fraction in simplest form.

| 0.018 | 1.55 |
Examples: Sports Application

A football player completed 1,546 of the 3,875 passes he attempted. Find his completion rate. Write your answer as a decimal rounded to the nearest thousandth. (You may use a calculator)

Johnny Unitas, a former professional quarterback, completed 2,830 of the 5,186 passes he attempted. Find his completion rate. Write your answer as a decimal rounded to the nearest thousandth. (You may use a calculator)
Lesson 2-7
Comparing and Ordering Rational Numbers

Warm-Up

When to fractions have the ______________ denominator, just compare the numerators.

Examples: Comparing Fractions

Compare the fractions. Write < or >.

\[
\begin{array}{c|c}
\frac{7}{9} & \frac{5}{8} \\
\hline
\frac{-2}{5} & \frac{-3}{7}
\end{array}
\]
To compare decimals, line up the decimal points and compare digits from left to right until you find the place where the digits are ____________.

**Examples: Comparing Decimals**

Compare the decimals. Write < or >.

<table>
<thead>
<tr>
<th>.0427</th>
<th>0.425</th>
</tr>
</thead>
<tbody>
<tr>
<td>.7(\overline{3})</td>
<td>0.734</td>
</tr>
<tr>
<td>.0535</td>
<td>0.538</td>
</tr>
<tr>
<td>.(\overline{3})</td>
<td>0.334</td>
</tr>
</tbody>
</table>

A rational number is a number than can be written as a fraction with ____________ for its numerator and denominator. When rational numbers are written in a variety of forms, you can compare the number by writing them all in the ____________ form.

**Examples: Ordering Fractions and Decimals**
Order \( \frac{4}{5} \), 0.93, and 0.9 from least to greatest.

Order \( \frac{3}{5} \), 0.84, and 0.7 from least to greatest.