Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

UNIT 3 LESSON 7

|  |  |
| --- | --- |
| AIM: | SWBAT compare rational numbers |

**THINK ABOUT IT!**

Sam has $10. He owes his friend Hank $2.50. He owes his sister $1.75. Consider the three rational numbers related to this story of Sam’s money. Using two different strategies, write and order the numbers from least to greatest.

Key Point

|  |
| --- |
| Mathematicians compare rational numbers using a number line and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |

**Interaction with New Material**

**Ex. 1)** Kianna is a marine biologist and studies different kinds of sharks. While scuba-diving, Kianna recorded the depths at which she saw three of her favorite types of sharks.

|  |  |
| --- | --- |
| Shark | Elevation |
| Hammerhead | 20 ½ feet below sea level |
| Great White | $-\frac{39}{4}$ feet |
| Blue | 20.15 feet below sea level |

Order the elevation of each shark from deepest to shallowest.

**PARTNER PRACTICE**

* CFS for top quality work
	+ Problem is annotated with margin notes to provide additional meaning
	+ Comparison performed with a number line or absolute value
	+ Answer statement is written
	+ Work is organized and neat

|  |
| --- |
| *Bachelor Level* |

1. Order each set of numbers from least to greatest using a **number line.**
	1. -0.4 and -0.35
	2. -1 ¾, 2 ½, $-\frac{3}{2}$

2) Ordering the following pair of numbers using **absolute value**: -5.14 and $-5\frac{1}{10}$

3) Explain how you used a number line and absolute value to compare the numbers in #2.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| *Master Level* |

4) There are three letters in Ms. Thomas’s mailbox: a bill from the phone company for $38.12, a bill from the electric company for $67.55, and a tax refund check for $25.89. (A bill is money that you owe someone and a tax refund check is money that you receive from someone). Which statements below are true? Select all that apply.

a) His electric bill is less than his phone bill because $\left|-67.55\right|$ < $\left|-38.12\right|$

b) His electric bill is more than his phone bill because -67.55 is a greater debt than -38.12

c) His tax refund check is the only positive value

d) He owes more to the electric company than to the phone company

**INDEPENDENT PRACTICE**

* CFS for top quality work
	+ Problem is annotated with margin notes to provide additional meaning
	+ Comparison performed with a number line or absolute value
	+ Answer statement is written
	+ Work is organized and neat

|  |
| --- |
| *Bachelor Level* |

1) Compare -2.72 and -2.6 using a numberline.

2) Compare $-\frac{13}{4}$ and $-3\frac{3}{8}$ using absolute value. Explain your answer.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) Which statement below is correct?

a) -0.25 < 2.8 < $-\frac{1}{8}$

b) $-\frac{1}{8}$ < -0.25 < 2.8

c) -0.25 < $-\frac{1}{8}$ < 2.8

d) 2.8 < -0.25 < $-\frac{1}{8}$

|  |
| --- |
| *Master Level* |

4) Jason is entering college and has opened a checking account, which he will use for college expenses. His parents gave him $200 to deposit into the account. Jason wrote a check for $85.99 to pay for his Calculus book and a check for $25.34 to pay for miscellaneous school supplies. Write the three rational numbers related to the balance in Jason’s checking account in order from greatest to least.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

5) On two consecutive plays, the AF Football team lost years. The first play, they moved the ball -5 ½ yards and on the second play they moved the ball -5 ¼ yards. On which play did they lose fewer yards?

6) Which inequality represents the comparison of the values of the two points plotted on the number line below? Select all that apply

 -1

0

1. -0.45 > -0.2
2. -0.55 > -0.8
3. -0.55 < -0.8
4. -0.8 > -0.55
5. -0.8 < -0.55

7) Part A: Which value of *N* makes the inequality true?

$$-2\frac{3}{5}>N$$

1. $-1\frac{1}{10}$
2. $-2\frac{2}{5}$
3. $-2\frac{6}{10}$
4. $-2\frac{9}{10}$

Part B: What is a generalized rule you can form about N? N must always be \_\_\_\_\_\_

8) Patrice and Arnold went to the bank together and checked their account balances. Patrice’s balance was -550.75 and Arnold’s was -560.34. Who has a greater debt? Explain using the concept of absolute value.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |
| --- |
| *PhD Level* |

9) Alex keeps track of the temperatures in several cities throughout the United States.

* + Chicago, IL: On Monday, the temperature was -3°F. On Tuesday, the temperature increased 2 degrees.
	+ Seattle, WA: On Monday, the temperature was 9°F. On Tuesday, the temperature decreased 9 degrees.
	+ Boston, MA: On Monday, the temperature was -4.5°F. On Tuesday, the temperature increased 3 degrees.
	+ Portland, ME: On Monday, the temperature was -5 ½°F. On Tuesday, the temperature increased 5 ¼ degrees.

Order the temperatures on Tuesday from coldest to warmest.

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* CFS for top quality work
	+ Problem is annotated with margin notes to provide additional meaning
	+ Comparison performed with a number line or absolute value
	+ Answer statement is written
	+ Work is organized and neat

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

|  |  |  |  |
| --- | --- | --- | --- |
| Self-assessment | I mastered the learning objective today. | I am almost there.  | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there.  | You need more practice and feedback. |

1. Create a number line and plot -3¼ and -3¾. Compare them numbers using <, > or =.

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain how you determined your comparison using the number line:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What one value that makes the following inequality true? \_\_\_\_\_\_\_ > -4 ½
2. Two submarines are below sea level. One submarine is at -50.35 meters and the second submarine is at -50.4 meters. Which submarine is closest to sea level? Explain your reasoning or use a model.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_