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

**CFS for top quality work**

* + Word problems are annotated for meaning
	+ Rational number expression is written
	+ **Subtraction** is changed to **addition** with the **additive inverse**
	+ Expression is evaluated using integer operation rules

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

UNIT 1 LESSON 10

**AIM**: SWBAT apply properties of operations to add and subtract rational numbers

**THINK ABOUT IT!**

Round the rational numbers in each problem to the nearest integer and solve to determine an estimation. Explain how you used integer operations to determine the estimation. Then solve the rational number expression to determine the final answer.

|  |  |
| --- | --- |
| **Estimate** | **Evaluate** |
| $$-12\frac{2}{4}+\left(-3\frac{1}{4}\right)$$ | $$-12\frac{2}{4}+\left(-3\frac{1}{4}\right)$$ |

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

Key Point:

|  |
| --- |
| Integer operation rules apply to solving \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ expressions |

**Interaction with New Material**

Ex. 1) Evaluate the expression $21\frac{1}{5}+\left(-24\frac{1}{2}\right)$

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Ex. 2) Evaluate the expression -31.2 – (-45.67)

**PARTNER PRACTICE**

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

1. Evaluate the expressions:

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	1. $-223.9+(-32.18)$
	2. $\frac{7}{10}+\left(-6\frac{4}{5}\right)$

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

1. Which expression will result is the smallest answer?
	1. |-34.56 – 98.22|
	2. -45.1 – (-43.99)
	3. 4 – 15.1
	4. 123.09 – 124.9
2. Tim is in debt $45.3. He spends $109.34 on two videos. How much money does Tim need to deposit into his account to not be in debt anymore?

**INDEPENDENT PRACTICE**

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

1. Evaluate the expressions:

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	+ Expression is evaluated using integer operation rules
	1. 88.05 + (-102.4)
	2. $-1\frac{1}{3}+\left(-4\frac{3}{4}\right)$
	3. $-5\frac{3}{4}-12\frac{4}{5}$

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

1. Evaluate the expressions:
	1. 25.5 + (-8.45) – 19
	2. $-\frac{1}{2}-\left(-2\frac{4}{5}\right)+\left(-10\frac{9}{10}\right)$
2. Lola is hiking and has stopped to rest at an altitude marker that says, “You’ve climbed 534 ¾ feet!” Her sister Denise is currently riding on a submarine, 321 ½ feet below the surface of the water. What is the vertical distance between the two sisters?
3. Oliver had saved $72.35 in his bank account, but he decided to splurge on a very expensive present for his mom for Mother’s Day. After he bought her present, his bank statement said – $15.09. What was the cost of the gift he bought?

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

1. The low temperatures for a week in January in Billings, MT are listed below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** | **Sunday** |
| -4.50 | -6.00 | -9.50 | -3.25 | -0.75 | 0.25 | ? |

Step A: Which day was the temperature the coldest?

Step B: The low temperature on Sunday was the 3.75 degrees colder than the low temperature on Saturday. What was the temperature on Sunday?

Step C: Between which two days did the temperature change the most? Explain how you know.

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

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**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. Which expression has the greatest value?
	1. -4.5 + (-3.4)
	2. -3.9 + 12.2
	3. $-\frac{12}{5}-2\frac{1}{4}$
	4. $-10\frac{1}{10}-(-9.1)$
2. At the beginning of the summer, the water level of a pond is 2$\frac{5}{6}$ feet below its normal level. After an unusually dry summer, the water level of the pond dropped another 1$\frac{1}{3}$ feet. Write and evaluate an expression to model the water’s current level relative to its normal level?