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

## Chapter 3 Review

For each type of question, the achievement level is indicated. Showing work is an important strategy in communicating your knowledge and ideas so please be thorough.

<b>Learning Goal 3.1</b>	I can identify, compare, and order rational numbers.
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**Developing**

1. Decide which of the following numbers are rational and which are not.

2.3	$-2\frac{1}{4}$	$\sqrt{5}$	$\frac{5}{2}$	$\sqrt{4}$	$-\frac{4}{3}$	4	-2.09	$\frac{4}{2}$	$\sqrt{2}$	$-\sqrt{9}$
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**Proficient**2. Place the **rational numbers** above in order from least to greatest **without using a calculator**.**Extending**3. Place **all the numbers** above in order from least to greatest **without using a calculator**.**Developing**

1. Decide which of the following numbers are rational and which are not.

0.3	$-\frac{3}{5}$	$\sqrt{\frac{18}{2}}$	$\frac{3}{4}$	-0.35	$-\frac{1}{3}$	$\frac{\sqrt{4}}{3}$	$\sqrt{7}$	$\frac{6}{5}$	$-\sqrt{3}$	$-\frac{7}{5}$
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**Proficient**2. Place the **rational numbers** above in order from least to greatest **without using a calculator**.**Extending**3. Place **all the numbers** above in order from least to greatest **without using a calculator**.**Proficient**1. What is a **decimal** number between each of the following pairs of rational numbers?

0.2, 0.3

0.5, 0.51

0.78, 0.79

**Extending**2. What is a **fraction** between each of the following pairs of rational numbers? $\frac{1}{5}, \frac{2}{5}$  $\frac{1}{4}, \frac{1}{2}$  $\frac{1}{3}, \frac{1}{2}$

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<b>Learning Goal 3.2</b>	I can add and subtract rational numbers.
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<b>Developing</b>			
1. Evaluate the following expressions on <b>integers</b> .			
$-12 + (-16)$	$14 - (-23)$	$-45 - 21$	$-24 + 27$
2. Evaluate the following expressions on <b>decimals</b> .			
$-4.3 - 6.8$	$9.1 + (-1.3)$	$18.2 - (-3.6)$	$(-5.7) + 6.2$
<b>Proficient</b>			
3. Evaluate the following expressions on <b>fractions</b> .			
$\frac{3}{4} + \frac{7}{8}$	$(-1\frac{1}{2}) + 3\frac{1}{3}$	$\frac{4}{3} - \frac{11}{6}$	
$(-3\frac{1}{4}) + (-2\frac{1}{6})$	$1\frac{5}{6} + (-5\frac{2}{3})$	$\frac{7}{4} + (-\frac{6}{5})$	
$-\frac{13}{4} - \frac{13}{3}$	$(-\frac{3}{5}) + \frac{4}{3}$	$1\frac{3}{5} - 2\frac{1}{2}$	
<b>Extending</b>			
$\frac{11}{9} + (-\frac{17}{6})$	$(-4\frac{5}{6}) + (-1\frac{5}{12})$	$3\frac{5}{7} - (-6\frac{2}{3})$	
$(-\frac{3}{10}) + (-\frac{9}{5})$	$(-3\frac{1}{3}) + 2\frac{5}{6}$	$(-2\frac{1}{8}) - (-4\frac{1}{3})$	

<b>Extending</b>
1. A technician checked the temperature of a freezer and found that it was $-15.7^{\circ}\text{C}$ . She noted that the temperature had dropped $7.8^{\circ}\text{C}$ from the day before. What was the temperature yesterday?
2. At the end of a day, the price of a stock was \$21.60. During the day, the price of the stock had dropped by \$0.75. What was the price of the stock at the beginning of the day?
3. On one day, the price of a stock changed by the following amounts in dollars: $-0.09, -0.51, +0.95, +0.54, -2.00$ . <ol style="list-style-type: none"> <li>Order the amounts from greatest loss to greatest gain.</li> <li>If the stock began the day at a value of \$87.45, what did it end the day at?</li> </ol>

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<b>Learning Goal 3.3</b>	I can multiply and divide rational numbers.
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**Developing**1. Evaluate the following expressions on **integers**.

$(-12) \times (-12)$	$4 \times (-13)$	$(-45) \div 5$	$24 \div (-8)$
$(-5) \times 12$	$(-17) \times (-2)$	$(-12) \div 12$	$(-18) \div (-9)$

2. Evaluate the following expressions on **decimals**.

$(-4.3) \times 6.8$	$9.1 \times (-1.3)$	$18.2 \div (-9.1)$	$(-10.5) \div 2.5$
$(-4.7) \times (-0.2)$	$2.0 \times 6.2$	$(-15.9) \div (-0.1)$	$(-11.4) \div (-0.3)$

**Proficient**3. Evaluate the following expressions on **fractions**.

$(-3\frac{1}{4}) \times (-2\frac{1}{6})$	$\frac{7}{4} \div (-\frac{6}{5})$	$(-\frac{3}{5}) \div \frac{4}{3}$
$1\frac{3}{5} \div 2\frac{1}{2}$	$(-\frac{3}{10}) \times (-\frac{9}{5})$	$(-2\frac{1}{8}) \times (-4\frac{1}{3})$
$\frac{11}{9} \times (-\frac{5}{6})$	$(-1\frac{5}{6}) \div (-1\frac{5}{7})$	$3\frac{5}{7} \times (-\frac{2}{3})$

**Extending**

$\frac{4}{3} \times \frac{11}{6}$	$-\frac{13}{4} \div \frac{13}{3}$	$1\frac{5}{6} \div (-5\frac{2}{3})$
$\frac{3}{4} \times \frac{8}{7}$	$(-1\frac{1}{2}) \times 3\frac{1}{3}$	$(-3\frac{1}{3}) \div 2\frac{5}{6}$

**Extending**

1. The temperature in Richmond, BC at 4:00 P.M. was  $2^{\circ}\text{C}$ . The temperature drops  $1.3^{\circ}\text{C}$  each hour. What will the temperature be at 11:00 P.M.? Justify your answer.

2. Write 3 multiplication statements that have the same product as

$$\left(-\frac{4}{9}\right)\left(\frac{7}{5}\right)$$

Check your answers.

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3. Multiply  $(-15)(-4)$ . Use your answer to determine each product **without a calculator**.

a.  $(-1.5)(-4)$

b.  $(1.5)(-0.4)$

c.  $(-150)(400)$

d.  $(-1500)(-0.004)$

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<b>Learning Goal 3.4</b>	I can simplify expressions with rational numbers using order of operations.
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**Developing**1. Evaluate the following expressions on **integers**.

$(-6) \times 9 - (-9) + (-10) \div (8 + (-3))$

$10 + 6 \div ((-7) - (-5)) \times ((-10) + 5)$

$(7 + (-3) - 4) \div ((-7) \times (2 - (-6)))$

$(4 \times (-4)) \div (2 - (-10) + 9 + (-5))$

$7 \div ((-3) + 4) \times (-10) - (-8) + 10$

$(-2) + (-4) - 8 \times (2 \div ((-10) \div 10))$

**Proficient**2. Evaluate the following expressions on **decimals**.

$((-6.6) + (-9.2) - (-6.4)^2) \div 2.2$

$((-7.2)^2 - 6.4) \times (1.8 + (-0.8))$

$(7.5 + 3.2) \times (1.2 - 2.2)^2$

$(2.2 + (-0.6)^2 - 1.4) \times (-2.5)$

$((-4.1) + (-8.6) - (0.5)^2) \times 7.2$

$(-1.8)^2 + 2.5 \times ((-4.5) - (-7.7))$

**Extending**3. Evaluate the following expressions on **fractions**.

$\left(\frac{3}{2} \times 3\frac{1}{2}\right) \div \left(\frac{6}{5} - 1\right)$

$\left(3\frac{7}{10} - \frac{11}{7}\right) \times \frac{8}{5} - 1\frac{1}{7}$

$\left(\frac{2}{3} + \frac{7}{5} + \frac{11}{6}\right) \times 2\frac{1}{4}$

$1\frac{2}{3} \times \left(1 + \frac{1}{4}\right) \div \frac{1}{4}$

$6\left(\frac{4}{3}\left(1 + \frac{1}{7}\right)\right) \div \frac{13}{10}$

$\left(1 - \frac{3}{4}\right) \times \frac{3}{7} \div 2$

$\frac{1}{2} \div \left(\frac{10}{7} \times 2\frac{5}{6}\right) \times 1\frac{3}{8}$

$\left(\frac{4}{3} - \frac{1}{2}\right) \div \frac{5}{3} \times 1\frac{3}{4}$

$\left(4\frac{9}{10} - 1\right)^2 \div 2\frac{1}{6}$

$\left(\frac{3}{4} \times 1\frac{4}{9}\right) \div \left(4\frac{1}{6} + 1\frac{3}{4}\right)$

$\left(7 \times \frac{10}{7}\right) \div \frac{6}{5} + 1\frac{3}{4}$

$\left(-\frac{7}{8}\right) \times \left(\frac{4}{5} - \left(\frac{2}{3}\right)^2\right)$

**Extending**

1. A family moves from Chicago to Saskatoon. A company that rents moving trucks uses this formula

$$C = 1.15(21.95d + 0.035(k - 120))$$

to determine the cost, including tax, of renting a truck for  $d$  days and  $k$  kilometers when  $k > 120$ . The distance from Chicago to Saskatoon is 2400 km and the family travels for 4 days. What is the cost to rent the truck?

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2. A student evaluated the following expression and the answer was 50.39 to the nearest hundredth. Another student evaluated the expression and the answer was 1.63 to the nearest hundredth. Who was right? What mistake was made?

$$\frac{23.7 - (-5.6) \div 0.7 + 6.8}{(-3) \times (-6.7) + 3.5}$$