

Name: _____

Date: _____

Section 3.6 Order of Operations with Rational Numbers:

1. Simplify and evaluate each of the following without a calculator:

a) $\frac{-9}{5} \times \frac{-15}{21} \div \left(\frac{-45}{14}\right)$	b) $\frac{3}{2} - \left(\frac{-3}{4}\right) + \frac{1}{4}$	c) $\frac{3}{10} - \frac{2}{5} - \left(\frac{-5}{8}\right)$
d) $\left(\frac{15}{-32}\right) \times \left(\frac{-8}{5}\right) \div \frac{21}{16}$	e) $\frac{1}{2} + \frac{2}{3} - \frac{3}{4} - \frac{2}{3}$	f) $\frac{1}{2} \left(\frac{6}{5} - \frac{8}{3}\right) + \frac{1}{2}$
g) $-3.75 \times 1.6 \div (-1.2)$	h) $\left[\frac{5}{12} \div 15\right] - \frac{5}{8} \times \frac{3}{10}$	i) $0.08 \times (1.2) \times 0.5 - 1.2$
j) $3.58 - \frac{14.5}{4.2} (3.7 - 5.8)$	k) $-4.8 \div 1.2 + \left(\frac{-50.5}{12.5}\right)$	l) $0.8 \times (0.375 - 1.75) - 1.5$

2. The following students simplified their work as shown. Indicate any the mistakes from each student:

a) $\frac{3}{10} - \frac{2}{5} - \left(\frac{-5}{8}\right)$ s1 $\frac{3}{10} - \frac{2}{10} + \frac{-5}{8}$ s2 $\frac{1}{10} + \frac{-5}{8}$ s3 $\frac{1}{80} - \frac{-50}{80}$ s4 $\frac{-49}{80}$	b) $\frac{3}{2} - \left(\frac{-3}{4}\right) \times \frac{8}{9}$ s1 $\frac{6}{4} + \frac{3}{4} \times \frac{8}{9}$ s2 $\frac{9}{4} \times \frac{8}{9}$ s3 $\frac{2}{1} = 2$	c) $\left[\frac{-5}{7} - \frac{5}{6}\right] \times \left(\frac{7}{13}\right)$ s1 $\left[\frac{-30-35}{42}\right] \times \left(\frac{7}{13}\right)$ s2 $\left[\frac{-65}{42}\right] \times \left(\frac{7}{13}\right)$ s3 $\frac{-455}{546}$
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3. The average mass (M) of a 14year old compared to their height (H) is given by the formula:
 $M = 0.75H - 72$. Mass is measured in kg and the height is measured in cm. What is the mass of a student that is 160cm tall?
4. The cost(C) for renting a car for “ n ” number of days is given by the formula: $C = 30.5n + 0.012(d - 60)$.
 Where “ d ” is the distance travelled altogether. What is the rental cost if the car is driven 850km in 8 days?
5. The relationship between Celsius and Fahrenheit degrees is given by the formula: $C = \frac{5}{9}(F - 32)$, where
 “ C ” is the degree in Celsius and “ F ” is the degree in Fahrenheit. Find the Celsius temperature which correspond to $40^\circ F$?
6. The rate of fuel consumption of a BMW is given by the formula: $R = -\frac{31}{6}F + \frac{33}{4}$. Where “ R ” is the rate in
 litres per 100km and “ F ” is the fraction of the driving on the highway. Find the value of “ R ” when 25% of the driving is on highway? Find “ R ” when 80% of the driving is on the highway? Compare the two answers.
7. The distance “ d ” that a car requires to come to a complete stop when brakes are applied is given by the
 formula: $d = vt - 3.6t^2$, where “ v ” is the speed of the car, and “ t ” is the time it takes to stop when the
 brakes are applied. If a car travelling at 120km/h and requires 4s to stop, how far will the car travel?
8. The value (A) of an invest is given by the formula: $A = P\left(1 + \frac{r}{n}\right)^{n \times t}$, where “ P ” is the principle, “ r ” is the
 interest rate, “ n ” is the number of compounds, and “ t ” is the number of years. If \$500 is invested for 12years
 compounded 12 times a year at 7% interest ($r=0.07$), what will the value be when the investment matures?