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) $-3.75\times1.6\div(-1.2)$	h) $\left[\frac{5}{12}\div15\right]-\frac{5}{8}\times\frac{3}{10}$	i) $0.08\times(1.2)\times0.5-1.2$
j) $3.58-\frac{14.5}{4.2}(3.7-5.8)$	k) $-4.8\div1.2+\left(\frac{-50.5}{12.5}\right)$	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) $\left[\frac{-5}{7}-\frac{5}{6}\right]\times\left(\frac{7}{13}\right)$ $s1\ \left[\frac{-30-35}{42}\right]\times\left(\frac{7}{13}\right)$ $s2\ \left[\frac{-65}{42}\right]\times\left(\frac{7}{13}\right)$ $s3\ \frac{-455}{546}$

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 $40°F$?

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?