## **Problem Solving with Rational Functions**

Ex.1. A consultant has issued an environmental report on the cost of cleaning up a property that was previously the site of a chemical factory. Costs can increase dramatically depending on the percent of pollutants that needs to be removed.

Her report gives the cost, C, in dollars, of removing p% of the pollutants from the site as:

$$C(p) = \frac{50000}{100 - p}$$

Mar 27-7:24 PM

a) What is the cost of removal for half of the pollutants?  $C(p) = \frac{50000}{100 - p}$ 

b) What is the cost of removal for 90% of the pollutants?

c) Would it be affordable to remove all of the pollutants?  $C(p) = \frac{50000}{100 - p}$ 

Mar 27-7:24 PM

Ex.2 Fred drove his car a distance of 2x km in 3 hours. Later, he drove a distance of (x + 100) km in 2 hours.

a) Write an expression for the first speed.

Use the equation:

speed=
$$\frac{\text{distance}}{\text{time}}$$

b) Write an expression for the second speed.

time

Ex.2 Fred drove his car a distance of 2x km in 3 hours. Later, he drove a distance of (x + 100) km in 2 hours. speed=distance

c) Write a simplified expression for the difference between the first speed and the second speed.

Mar 27-7:28 PM

Ex.2 Fred drove his car a distance of 2x km in 3 hours. Later, he drove a distance of (x + 100) km in 2 hours. speed=distance

d) Determine the value(s) of x for which the speed was greater for the second trip.

Mar 27-11:00 AM

$$t_{m} = \frac{1080}{v} \qquad t_{p} = \frac{1080v}{v^{2}-6400}$$

$$t_{m} - t_{p} = \frac{1080}{v} - \frac{1080v}{v^{2}-6400}$$

$$= \frac{1080(v^{2}-6400) - (080v)(v)}{v(v^{2}-6400)}$$

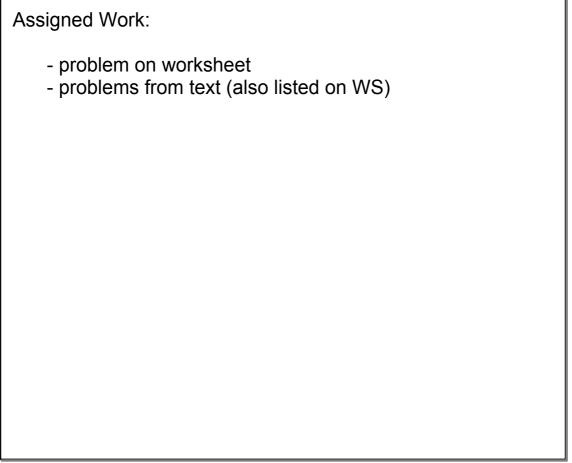
$$= \frac{1080v^{2} - 6912000 - (080v)^{2}}{v(v^{2}-6400)}$$

$$= \frac{-6912000}{v(v^{2}-6400)} \qquad v \neq 0,80,80,80$$
(pure math)
$$v > 80$$
(real world)
$$t_{m} - t_{p} = \frac{1080v}{v(v^{2}-6400)} = \frac{1080v}{v(v^{2}-6400)}$$

$$= \frac{-6912000}{v(v^{2}-6400)} = \frac{1080v}{v(v^{2}-6400)} = \frac{1080v}{v(v^{2}-6400)}$$

$$= \frac{-6912000}{v(v^{2}-6400)} = \frac{1080v}{v(v^{2}-6400)} = \frac{108$$

Mar 27-2:43 PM



Mar 27-7:33 PM