

Name: _____

1. Two cars start from the same point at the same time and travel in opposite directions. The slow car travels at 56 mph, and the fast car travels at 70 mph. In how many hours will the cars be 504 miles apart?

2. A passenger train and a freight train start at the same time from stations which are 405 miles apart and travel toward each other. The rate of the passenger train is twice the rate of the freight train. In 3 hours, the trains pass each other. Find the rate of each train.

3. Two trains started at the same time from stations which were 360 miles apart and traveled toward each other. The rate of the fast train exceeded the rate of the slow train by 10 mph. At the end of 2 hours, the trains were still 120 miles apart. Find the rate of each train.

4. Simplify:

$$\frac{\frac{1}{x^2} + \frac{1}{xy^2}}{\frac{1}{y^2} + \frac{1}{x}}$$

5. Set up an equation satisfying the following condition and try to solve it.

“When the largest of three consecutive even integers is divided by one more than one-half the smallest, the quotient is 2 and the remainder is 2.”

Can you find three integers satisfying this condition? Explain.