Algebra

2.5 Distance, Rate, Time Problems

Name:_____

Period:_____

Same Direction Travel

1. Leaving from her house, Mary leaves Pittsburgh in her car traveling towards Cleveland at 3 PM. She travels at an average rate of 30 mi/h. Mary's brother Jack leaves the house an hour later and follows the same route as Mary. He travels at an average rate of 60 mi/h. How long will it take Jack to catch up to Mary?

Draw a diagram and complete a table (rate · time = distance) to help you visualize the information.

	RATE * TIME		= DISTANCE
Mary's Trip			
Jack's Trip			

Define your variables.

Write an equation and solve (use your diagram and table to set up equation).

2. A train leaves the train station at 1 PM traveling at an average rate of 60 mi/h. A second train leaves the same station an hour later. It travels at a rate of 96 mi/h. How long will it take the second train to catch up to the first?

Round Trip Travel

3. On Jerry's way to work in the morning, he was only able to travel at a rate of 20 mi/h because of traffic. On his drive home, he averaged 40 mi/h. If his total travel time was $1\frac{1}{2}$ hours, how long did it take him to drive to work?

Draw a diagram and complete a table (rate · time = distance) to help you visualize the information.

	RATE * TIME		= DISTANCE
To Work			
Return Home			

Define your variables

Write an equation and solve (use your diagram and table to set up equation).

4. Suppose you hike up a hill at a rate of 4 mi/h. You hike back down the hill at 6 mi/h. The total time you spent on the hiking trip was 3 hours. How much time did it take you to hike up the hill?

Opposite Direction Travel

5. Jane and Peter leave their home traveling in opposite directions on a straight road. Peter drives 15 mi/h faster than Jane. After 3 hours, they are 225 miles apart. Find Peter's rate and Jane's rate.

Draw a diagram and complete a table (rate · time = distance) to help you visualize the information.

	RATE * TIME		**= DISTANCE**
Jane			
Peter			

Define your variables

Write an equation and solve (use your diagram and table to set up equation).

6. Sarah and John leave Butler traveling in opposite directions on a straight road. Sarah drives 12 mi/h faster than John. After two hours, they are 176 miles apart. Find Sarah's rate and John's rate.

7. Suppose that I am walking from school at 3 miles per hour and start at 12:00. At 12:30, you start riding your bike at 18 miles per hour to find me. At what time do you find me?

8. An express train and a local train start out from the same point at the same time and travel in opposite directions. The express train travels twice as fast as the local train. If after 4 hours they are 480 miles apart, what is the average speed of each train?