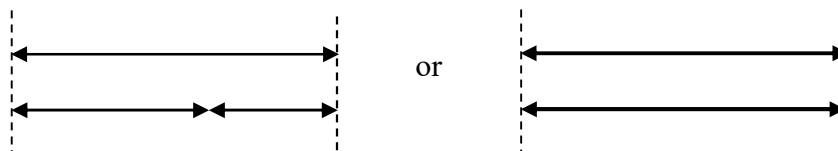


Rate Problem Homework

Every rate problem can be modeled with two sets of lines that are equal. The lines will look like:



The length of each line is equal to either a **DISTANCE** or a **RATE x TIME**.

Use the lines to write two expressions. Set the expressions equal to each other and solve for x .

Homework:

1. A cheetah and an impala spot each other when they are 450 meters apart. The impala begins running at a speed of 20 meters per second. At the same instant, the cheetah takes off after it at 26 meters per second. How long does it take the cheetah to catch up to the impala?
2. Daisy and Danny decide to have a bike race. Daisy can ride at 720 meters per minute and Danny can ride at 660 meters per minute. Daisy gives Danny a head start of 2 minutes since she rides faster. How long will it take Daisy to catch up to Danny?
3. The largest swimming pool in the world is 480 meters long. Two swimmers at opposite ends of the pool jump in at the same time and start swimming toward each other. One has a speed of 70 meters per minute and the other has a speed of 80 meters per minute. How long will it take for the swimmers to meet?
4. The Wright brothers took off from an airport at the same time. Orville flew 160 miles per hour north and Wilber flew 200 miles per hour south. How many hours will it take for them to be 900 miles apart?
5. Lauren takes 3 hours to travel from Arbuckle to Bowton on her moped. Richard covers the same distance in 2 hours because he travels 10 miles per hour faster. Find Lauren's and Richards' speeds. How far is it between Arbuckle and Bowton?
6. Mindy and her brother Don left home at the same time, but traveled in opposite directions. Don's speed was 6 miles per hour faster than Mindy's. After 10 hours they were 940 miles apart. Find the speed at which each of them traveled.
7. A passenger train leaves the station at 9 am and travels at 30 mph. Two hours later, an express train leaves the same station on a parallel track and travels at 50 mph. At what time will the express train catch up to the passenger train?
8. A boat travels for three hours with a current of 3 mph and then returns the same distance against the current in four hours. What is the boat's speed in calm water? How far did the boat travel one way?