

Applications: Distance=Rate*Time

Uniform Motion Problems

Distance = Rate * Time

$$D = RT$$

$$R = \frac{D}{T}$$

$$T = \frac{D}{R}$$

- A. At 10:00 a.m. Kay and Gene leave their homes that are 15 miles apart, walking toward each other. If Kay walks at a rate that is 2 mph faster than Gene and they meet after 1.5 hours, find how fast each person was walking.

Unknowns: G = rate Gene walks distance Gene travels = _____
 _____ = rate Kay walks distance Kay travels = _____

Equation: _____

- B. A freight train passes the crossing at 1:00 p.m. going 30 mph. Ten minutes later, a passenger train, headed in the same direction on an adjacent tract, passes the same crossing going 45 mph. Find out what time the passenger train will catch the freight train.

Unknowns: F = time the freight train was traveling
 _____ = time the passenger train was traveling

CAUTION: Since distance is calculated in miles per hour, the 10 minutes used in
 This calculation must also be in hours. 10 minutes is 1/6 of an hour.

The two trains will have traveled the same distance when the freight train catches the passenger train. Therefore, the distance of the freight train = the distance of the passenger train. $D = RT$

Equation: (rate of freight) · (freight time) = (rate of passenger) · (passenger time)

- C. A sports car and a truck pulling a trailer pass the same mile marker on interstate at the same time. The car is traveling 70 mph and the truck is traveling at 55 mph. Find how many minutes will elapse before the two are 5 miles apart.