

1. We traveled for nine hours. Then we increased our velocity by 7 miles per hour and traveled an additional six hours. What was our original velocity if all together we have traveled 582 miles?
2. A bicycle leaves Chicago, heading East at $12 \frac{\text{mi}}{\text{hr}}$. Two hours later, a second bicycle leaves Chicago, heading East at $15 \frac{\text{mi}}{\text{hr}}$. How long will it take for the second bicycle to overtake the first bicycle?
3. Town A and town B are located 68 miles apart. A jogger starts in town A and jogs toward town B . At the same time, a bicycle starts in town B and travels toward town A . The difference between the speed of the jogger and that of the bicycle is 5 miles per hour. Find the speeds if the jogger and the bicycle meet exactly 4 hours after the start.
4. Ann headed south at 45 miles per hour. Two hours later Sue followed her, at 55 miles per hour. How long until Sue catches up with Ann?
5. The cop was chasing the crook who had a 60 ft head start. The velocity of the cop was 14 feet per second while that of the crook was 9 feet per second. How long until the cop catches up with him?
6. A plane leaves an airport and flies south at 400 miles per hour. Later, a second plane leaves the same airport and flies south at 480 miles per hour. If the second plane overtakes the first one in 1 hour, how much earlier did the first plane leave?
7. Chicago, IL and Montpelier, VT are about 1000 miles apart. A car leaves Chicago to Montpelier at the same time as a train leaves Montpelier for Chicago. The train is $40 \frac{\text{mi}}{\text{hr}}$ faster than the car. Find the speed of the car if it takes 5 hours until the train and car meet.
8. A bicycle leaves Chicago, heading West at $15 \frac{\text{mi}}{\text{hr}}$. Two hours later, a second bicycle leaves Chicago, heading West at $20 \frac{\text{mi}}{\text{hr}}$. How long will it take for the second bicycle to overtake the first bicycle?
9. Milwaukee, WI and Albuquerque, NM are about 1500 miles apart. A plane leaves Milwaukee to Albuquerque at the same time as a train leaves Albuquerque for Milwaukee. The plane is $120 \frac{\text{mi}}{\text{hr}}$ faster than the train. Find the speed of the plane if it takes 3 hours until the plane and train meet.