

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? $36 \frac{\text{mi}}{\text{hr}}$.
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? **8 hours after the second bicycle started.**
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. **The speed of the jogger is $6 \frac{\text{mi}}{\text{hr}}$ and that of the bicycle is $11 \frac{\text{mi}}{\text{hr}}$.**
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? **9 hours.**
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? **12 seconds.**
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? **$\frac{1}{5}$ hr = 12 minutes earlier.**
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. **$80 \frac{\text{mi}}{\text{hr}}$.**
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? **6 hours**
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. **The speed of the train is $190 \frac{\text{mi}}{\text{hr}}$ and that of the plane is $310 \frac{\text{mi}}{\text{hr}}$.**