

Currents

You take your boat on a trip 36 miles down the river. On the way to your destination (going down river), the 3mph current speeds you up. On the way back (going up river) the same current slows you down. Your total travel time is 9 hours.

- A. Write an expression for the time it takes going down river, which means with the current speeding you up. (recall that $d=st$ therefore $t = \frac{d}{s}$).
- B. Write the expression for the time it takes going up river
- C. Since $\text{Time}_{\text{downriver}} + \text{Time}_{\text{upriver}} = \text{Time}_{\text{total}}$ write an equation using your expressions from parts a and b.
- D. Solve for the variable
- E. What does your answer represent in this situation?

Nancy drove from Houston to San Antonio, a distance of 250 miles. She increases her speed by 10 miles per hour for a 360 miles drive from San Antonio to Dallas.

- A. What is her speed from Houston to San Antonio? What do you use if you don't know?
- B. What is her speed from San Antonio to Dallas?
- C. If the total trip took 11 hours, write an equation to represent this situation.
($\text{Time} + \text{Time} = 11$, remember $t = \frac{d}{s}$)
- D. Solve your equation, what does your answer tell you?

The speed of a stream is 4km/hr. A boat travels 6 km upstream in the same time it takes to travel 12 km downstream. (ie Time=Time)

A. What is the expression for the time it takes to travel upstream (against the current)?

B. What is the expression for the time it takes to travel downstream (with the current)?

C. Solve for the speed of the boat in still water. (remember Time = Time)

A plane flies 1000 miles from New York to Chicago at a speed of 580 mph. On the return trip, a tailwind helps the plane move faster. The total flying time for the round trip is 3.4 hours.

A. Write an expression for the time going from New York to Chicago.

B. Write an expression for the time going from Chicago to New York.

C. Write an equation for the total time of the trip and solve for the speed of the tailwind.

(Time + Time = Total Time)