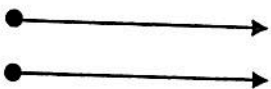
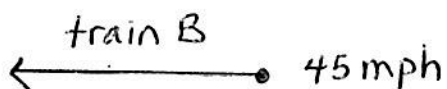
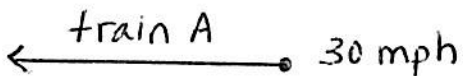


C.



2 vehicles head in the same direction

Train A heads west at 30 mph. Two hours later, train B heads west at 45 mph following exactly the same route. How long will it take the second train to catch the first one?



$x =$ time (in hours) train A has traveled = 6 hours

$x - 2 =$ time (in hours) train B has traveled = 4 hours

train A's distance = train B's distance

$$30x = 45(x - 2)$$

$$30x = 45x - 90$$

$$-15x = -90$$

$$x = 6$$

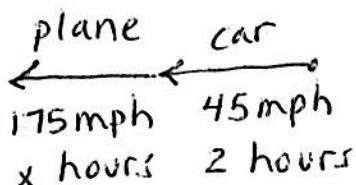
It takes the second train 4 hours to catch the first train.

D.



A trip is made using different modes of transportation

A person heads west in a car going 45 mph. After 2 hours the trip is continued in a plane traveling at 175 mph. The trip was a total of 200 miles. How much time was spent in the plane?



$x =$ number of hours on the plane

car distance + plane distance = total distance

$$45(2) + 175x = 200$$

$$90 + 175x = 200$$

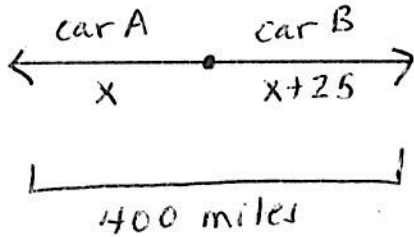
$$175x = 110$$

$$x = \frac{22}{35}$$

$$\frac{22}{35} \times 60 \approx 38 \text{ minutes}$$

Your Turn!

1. A car travels west for 2 hours. A second car headed in the opposite direction traveling for 3 hours going 25 mph faster. When they stop, they are 400 miles apart. How fast was each car going?



$$x = \text{speed of car A} = 65 \text{ mph}$$

$$x+25 = \text{speed of car B} = 90 \text{ mph}$$

$$\text{distance car A} + \text{distance car B} = \text{total distance}$$

$$2x + 3(x+25) = 400$$

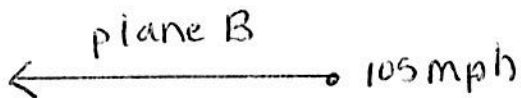
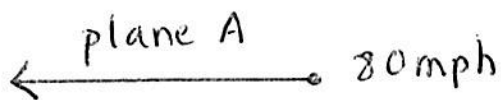
$$2x + 3x + 75 = 400$$

$$5x + 75 = 400$$

$$5x = 325$$

$$x = 65$$

2. A plane heads west at 80 mph. Two hours later another plane heads out after the first on the same route going 25 mph faster. How long did it take the second plane to catch the first?



$$x = \# \text{ of hours traveled}$$

$$\text{by plane A} = 8 \text{ hours } 24 \text{ min}$$

$$x-2 = \# \text{ of hours traveled}$$

$$\text{by plane B} = 6 \text{ hours } 24 \text{ min}$$

$$\text{plane A distance} = \text{plane B distance}$$

$$80x = 105(x-2)$$

$$80x = 105x - 210$$

$$-25x = -210$$

$$x = 8.4$$

$$.4 \times 60 = 24 \text{ minutes}$$