Pitt   D.C

Local   5hrs

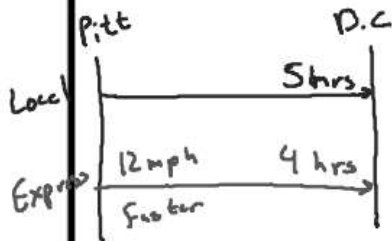Express   12 mph   4 hrs   faster

An express train and a local train leave Pittsburgh to travel to Washington D.C. the express train and make the trip in 4 hours and the local train takes 5 hours for the trip. The speed of the express train is 12 miles per hour faster thatn the speed of the local train. Find the speed if both trains.

$d = rt$

	Rate	· Time	= Distance
Local	x	5	$5x$
Express	$x + 12$	4	$4(x + 12)$

$$5x = 4(x + 12)$$
$$5x = 4x + 48$$
$$x = 48$$

Local train   48 mph

Express train   48 + 12
                 60 mph

RSP   Beach

Dennis   7 mph   1.5 hr
       faster

Wayne   2 hrs

Wayne and Dennis like to ride the bike path from Riverside Park to the beach. Dennis's speed is seven miles per hour faster than Waynes's speed, so it takes Wayne 2 hours to ride to the beach while it takes Dennis 1.5 hours for the ride. Find the speed of both bikes.
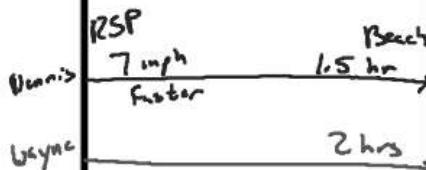
	Rate	· Time	= Distance
Dennis	$x + 7$	1.5	$1.5(x + 7)$
Wayne	x	2	$2x$

$$1.5(x + 7) = 2x$$
$$1.5x + 10.5 = 2x$$
$$10.5x = .5x$$
$$x = 21$$

Wayne $= 21$ mph

Dennis   28 mph

	Rate	tim	Dist
J	x+20	4.5	4.5(x+20)
m	x	6	6x

Jeremy can drive from his house in Cleveland to his college in Chicago in 4.5 hours. It takes his mother 6 hours to make the same drive. Jeremy drives 20 miles per hour faster than his mother. Find Jeremy's speed and his mother's speed.

Jeremy
$4.5(x+20)$
$80\ mph$

mom
$6x$
$60\ mph$

$6x = 4.5(x+20)$
$6x = 4.5x + 90$
$1.5x = 90$
$x = 60$

Rest

Chris
10 mph
faster   d

1.5hr | 1 hr

Par

d

115

Chris and his parents live 115 miles apart. They met at a restaurant between their homes to celebrate his mother's birthday. Chris drive 1.5 hours while his parents drove 1 hour to get to the restaurant. Chris's average speed was 10 miles per hour faster thatn his parents' average speed. What where the average speeds of Chris and of his parents as they drove to the restaurant?

	Rate	· Time	= Distance
Parents	X	1	X
Chris	X+10	1.5	1.5(x+10)

Parents   40 mph
Chris   50 mph

$X + 1.5(x+10) = 115$
$X + 1.5x + 15 = 115$
$2.5x + 15 = 115$
$2.5x = 100$

$X = 40$

Lunch

Carrie
3hr | 4 hr

Bro
15 mph
faster

410

Carrie is driving from her home in Anaheim to Berkeley on the same day here brother is driving from Berkeley to Anaheim, so they decide to meet for lunch along the way in Buttonwillow. The distance from Anaheim to Berkeley is 410 miles. It takes Carrie 3 hours to get to Buttonwillow, while her brother drives 4 hours to get there. The average speed Carrie's brother drove was 15 miles per hour faster than Carrie's average speed. Find Carrie's and her brother's average speed.

Carrie	X	3	3x
Bro	X+15	4	4(x+15)

$3x + 4(x+15) = 410$
$3x + 4x + 60 = 410$
$7x = 350$
$X = 50$

Carrie — 50 mph
Bro — 65 mph

	r	t	
W	x	$\frac{1}{2}$	
B	x+3	$\frac{1}{4}$	

When Katie walks to school, it takes her <u>30 minutes</u>. If she rides her bike, it takes her <u>15 minutes</u>. Her speed is three <u>miles per hour faster</u> when she rides her bike than when she walks. What are her walking speed and her speed riding her bike?

$$\frac{1}{2}x = \frac{1}{4}(x+3)$$

$$\frac{x}{2} = \frac{x}{4} + \frac{3}{4}$$

Ryan takes 45 minutes to drive his boat upstream from the dock to his favorite fishing spot. It takes him 30 minutes to drive the boat back downstream to the dock. The boat's speed going downstream is four miles per hour faster than its speed going upstream. Find the boat's upstream and downstream speeds.

Suzy takes 50 mintes to hike uphill from the parking lot to the lookout tower. It takes her 30 minutes to hike back down to the parking lot. Her speed going downhill is 1.2 miles per hour faster than her speed going uphill. Find Suzy's uphill and downhill speeds.