Algebra 1 Bellwork Friday, October 10, 2014

1. Maria and Ali are both riding their bikes. Maria rides for $2\frac{1}{2}$ hours and Ali rides for 2 hours. Ali rides 2 mph faster than Maria. When they both stop riding they've traveled the same distance.
Write and solve an equation to fin out how fast was each person riding?

	Distance =	Rate •	Time

2. Mr. Amen left on his boat at 9:00am and sailed at 12 mph. Mr. Richards left on his boat at 9:30 am and sailed at 15 mph to catch up with Mr. Amen. At what time of day will Mr. Richards catch up with Mr. Amen?

	Distance =	Rate •	Time

3. A train travels round-trip between Detroit and Memphis. The train traveled 75 mph in on the way to Memphis but due to weather it could only travel 60 mph on the return trip. The total travel time was 9 hours. Find the time it took to travel in each direction.

	Distance =	Rate •	Time

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Answers

1. Maria and Ali are both riding their bikes. Maria rides for $2\frac{1}{2}$ hours and Ali rides for 2 hours. Ali rides 2 mph faster than Maria. When they both stop riding they've traveled the same distance. Write and solve an equation to fin out how fast was each person riding?

	Distance =	Rate •	Time
Maria	$2.5r$ =	r •	2.5
Ali	$2(r+2)$ =	$r+2$ •	2

maria's distance = Ali's distance

$2.5r = 2(r+2)$

$2.5r = 2r + 4$

$-2r \quad -2r$

$.5r = 4$

$r = 8$

Maria → 8 mph

Ali → 10 mph

2. Mr. Amen left on his boat at 9:00am and sailed at 12 mph. Mr. Richards left on his boat at 9:30 am and sailed at 15 mph to catch up with Mr. Amen. At what time of day will Mr. Richards catch up with Mr. Amen?

	Distance =	Rate •	Time
Mr Amen	$12t$ =	12 •	t
Mr Richards	$15(t-.5)$ =	15 •	$t-.5$

Mr Richards left ½ hour later

mr. Amen's distance = Mr. Richard's distance

$12t = 15(t-.5)$

$12t = 15t - 7.5$

$-15t \quad -15t$

$-3t = -7.5$

$t = 2.5$ hrs

$t = 2.5$ hrs → 2½ hrs after Mr Amen left

= 9:00am + 2½hrs = 11:30am

3. A train travels round-trip between Detroit and Memphis. The train traveled 75 mph in on the way to Memphis but due to weather it could only travel 60 mph on the return trip. The total travel time was 9 hours. Find the time it took to travel in each direction.

	Distance =	Rate •	Time
DTW → MEM	$75t$ =	75 •	t
MEM → DTW	$60(9-t)$ =	60 •	$9-t$

TOTAL TIME = 9

DTW → mem + mem → DTW = 9

t + mem → DTW = 9

mem → DTW = $9-t$

DTW → Mem distance = mem → DTW distance

$75t = 60(9-t)$

$75t = 540 - 60t$

$+60t \quad +60t$

$135t = 540$

$t = 4$

DTW → MEM = 4 hrs

MEM → DTW = 9 - 4 = 5 hrs