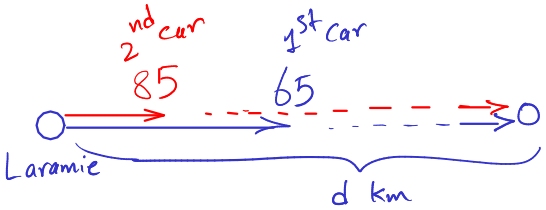
Algebra & Trig - MATH 1450-02 - Quiz #5 - Jan 28, 2013

Name:

1. A car leaves Laramie traveling 65 kilometers per hour. An hour later a second car leaves Laramie following the first car and traveling 85 kilometers per hour. How Long will it take the second car to overtake the first?



Let's assume the second car takes over the first car after d kilometers, it would take the first car t_1 hours to get there, where t_1 is the solution of $65t_1 = d$. On the other hand, it would take the second car t_2 hours to get there, where t_2 is the solution of the equation $85t_2 = d$. But we know that $t_2 = t_1 - 1$.

So, $85(t_1 - 1) = d$ and $65(t_1) = d$ $\rightarrow$ $85(t_1 - 1) = 65t_1$

$\Rightarrow 85t_1 - 85 = 65t_1$

$\Rightarrow 20t_1 = 85$

$\Rightarrow \boxed{t_1 = \frac{85}{20} = 3.25 \text{ h}}$

or 3 hours and 15 minutes.