

Next Step Pre-Med Equation Worksheet #3

Find distance given time and two different velocities (assuming constant acceleration)	$d = \frac{(v_1 + v_2)}{2} t$
Variables	d = distance v ₁ , v ₂ = two different velocities t = time
Units	meters = [(m / sec) + (m / s)] x s
<i>For each of the follow examples, identify which variables are the same and which are different. Then, based on the given difference, predict the difference in the final variable.</i>	
Two cars, starting at 10 m/s, drive in the same direction and arrive at the same destination. Car 1 takes less time to make the trip. Compared to Car 2, Car 1's final velocity is:	d, v ₁ are the same Car 1 has a smaller t So Car 1 has a larger v ₂
Two children race from the same starting position to the same tree. When they each arrive at the tree, they are going the same speed. Child 2 arrives in less time than Child 1. Compared to Child 1, Child 2's v ₁ must be:	d, v ₂ are the same Child 2 has a smaller t So Child 2 has a larger v ₁
Two dogs run from the same starting line to the same finish line. Each dog finishes the run in 15 seconds. Dog 1 starts from rest but Dog 2 starts the run at 5 m/s. Dog 2 must:	d, t are the same Dog 2 has a larger v ₁ So Dog 2 must have a smaller v ₂
In two separate time trials, a car begins each trial going 20 m/s and ends each trial going 25 m/s. If the second trial is longer than the first, then Trial 2 must:	v ₁ , v ₂ are the same Trial 2 has a larger d So Trial 2 must have a larger t
Two cars both start from rest and drive for 25 seconds. If Car 1 ends the drive going faster than Car 2, then Car 1 must:	v ₁ , t are the same Car 1 has a larger v ₂ So Car 1 must have a larger d
Two objects are thrown from windows. They travel for the same amount of time and arrive at the ground going the same speed, but Object 1 is thrown from a higher window. Compared to Object 2, Object 1 must have:	v ₂ , t are the same Object 1 has the higher d So Object 1 must have the higher v ₁