

## MODELING WITH LINEAR FUNCTIONS

### Investment Problems (Simple interest: $P \times r \times t = I$ )

	Principal $\times$	Rate $\times$	Time	= Interest
Investment 1				
Investment 2				

Once the table is completed, the final column is useful in writing an equation about the interest earned in the overall investment.

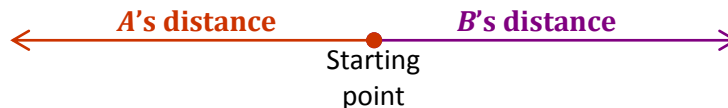
### Uniform Motion Problems ( $r \times t = d$ )

	Rate $\times$	Time	= Distance
Vehicle 1			
Vehicle 2			

Once the table is filled in, a sketch of the motion involved leads to an understanding of the relationship between various distances. Entries in the final column are useful in terms of the equation.

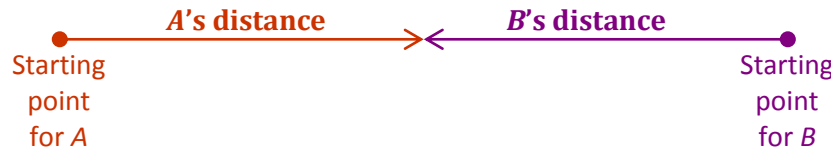
Typical situations include the following:

- A and B move in **opposite directions** starting from the same point:



The distance traveled by A added to the distance traveled by B is equal to the distance that A and B are apart.

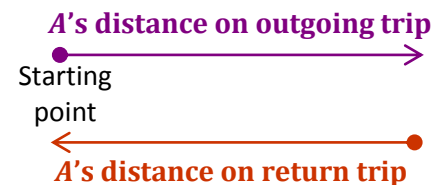
- A and B move in the **same direction** starting from different points:



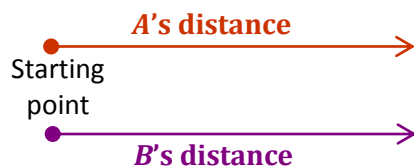
The distance traveled by A added to the distance traveled by B is equal to the distance that A and B were originally apart.

- Roundtrips:

The distance on the outgoing trip is equal to the distance on the return trip.



- A and B leave from the same point at different times:



At the instant that A overtakes B (or vice versa) the distance traveled by A is equal to the distance traveled by B.

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### Mixtures

	Total Amount $\times$	Percentage of a Substance	= Amount of the Substance
Solution A			
Solution B			
Mixture of A & B			

*Once the table is completed, the final column is useful in writing equations.*

*An implied English sentence is that the sum of the substances in solutions A and B is equal to the amount of the substance in the mixture.*