

# Multiplication and Division Problem Situations

<b>ASYMMETRIC (NONMATCHING) FACTORS</b>				
	<b>Product Unknown</b>	<b>Multiplier (Number of Groups) Unknown</b>	<b>Measure (Group Size) Unknown</b>	
Equal Groups				
	<b>Product Unknown (<math>y</math>)</b>	<b>(Unit) Rate Unknown (<math>k</math>)</b>	<b>Measure Unknown (<math>x</math>)</b>	
Ratio/Rate*				
	<b>Resulting Value Unknown</b>	<b>Scale Factor (Times as Many) Unknown</b>	<b>Original Value Unknown</b>	
Multiplicative Comparison				
<b>SYMMETRIC (MATCHING) FACTORS</b>				
	<b>Product Unknown</b>	<b>One Dimension Unknown</b>		<b>Both Dimensions Unknown</b>
Area/Array				
	<b>Sample Space (Total Outcomes) Unknown</b>	<b>One Factor Unknown</b>		<b>Both Factors Unknown</b>
Combinatorics** (Probability and Cartesian Products)				

\*Equal Groups problems, in many cases, are special cases of a category that includes all ratio and rate problem situations. Distinguishing between the two categories is often a matter of interpretation. Since the Ratio/Rate category is a critically important piece of the middle school curriculum and beyond, the Ratio/Rate category is given its own row here.

\*\*Combinatorics (probability and Cartesian products) are typically not included in the table of multiplication and division problem situations. Since this is a category of problem situation addressed in middle school mathematics standards, it has been added to this table.

## References

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