

## Triangle Formulas

(An Easy Way to Solve For Different Variables in Science Formulas)

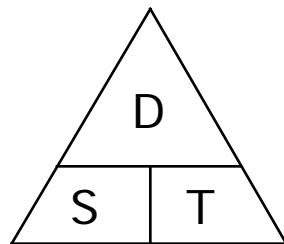
In the middle school science course that I teach, my students often have to manipulate various simple formulas in order to solve for one of the variables in the formula. Since many of my students lack the math background that would allow them to algebraically solve for the other variables in the formula I had to come up with something they could understand.

This approach works best with those simple formulas seen in a typical 8<sup>th</sup> grade science course. A selection of typical formulas follows the directions below. They aren't all of the triangle formulas for my students but once you get the idea of how they are set up, it's easy to come up with others for things like Ohm's law, power formulas, etc. -Kevin Roberts

### Triangle Formula Directions:

- To use, cover up the term you want to solve for. The position of the other two terms relative to each tell you what to do next.
- If the other two terms are next to each other, they get multiplied.
- If the other two terms are above and below each other, the term on top is divided by the term below.

#### Speed

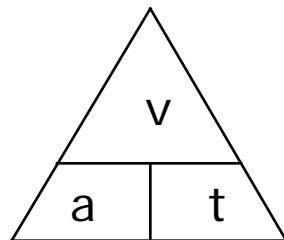


S = speed

D = distance

T = time

#### Acceleration

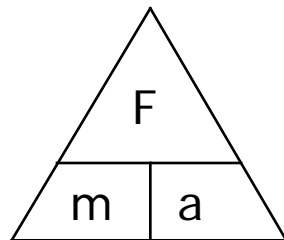


a = acceleration

V = change in velocity

T = change in time

#### Force

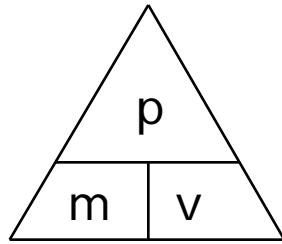


F = force

m = mass

a = acceleration

**Momentum**

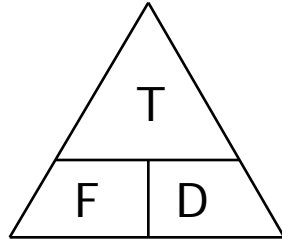


p = momentum

m = mass

v = velocity

**Torque**

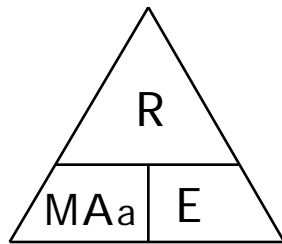


t = torque

f = force

d = distance

**Actual  
Mechanical  
Advantage**

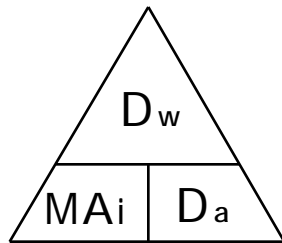


MAa = actual  
mechanical  
advantage

R = resistance

E = effort

**Wheel and Axle  
Ideal  
Mechanical  
Advantage**

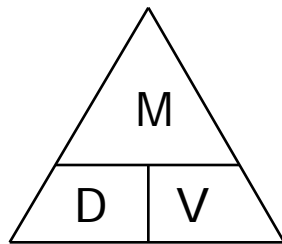


MAi = ideal  
mechanical  
advantage

Dw = diameter of  
wheel

Da = diameter of  
axle

**Density**

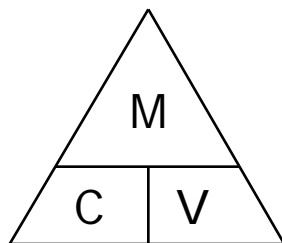


D = density

M = mass

V = volume

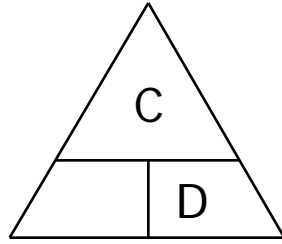
**Concentration**



C = concentration M = mass of solute

V = volume of  
solvent

**Circumference  
of circle**



C = circumference

= 3.14...

D = diameter