

**AP Calculus**  
**2.12 – Related Rates I**  
**Formulas You Must Know!**

Pythagoras	$a^2 + b^2 = c^2$
Trig. Formulas	SOH, CAH, TOA
Sine Law	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
Cosine Law	$c^2 = a^2 + b^2 - 2ab \cos C$
Area of triangle	$\frac{1}{2}bh$ or $\frac{1}{2}ab \sin \theta$
Circle	$A = \pi r^2$ , $C = 2\pi r$
Sphere	$V = \frac{4}{3}\pi r^3$ , $SA = 4\pi r^2$
Cylinder	$V = \pi r^2 h$ , $SA = 2\pi r^2 + 2\pi r h$
Cone	$V = \frac{1}{3}\pi r^2 h$ , $SA = \pi r \sqrt{r^2 + h^2}$
Prisms	$V = (\text{Area of base}) \times (\text{Distance between bases})$
Similar Triangles	Ratios of corresponding sides are equal.