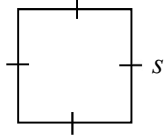
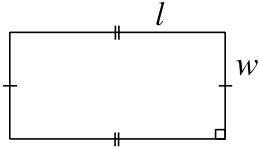
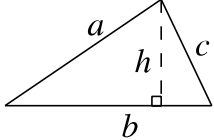
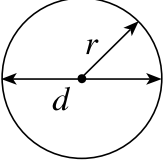


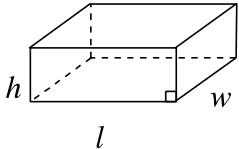
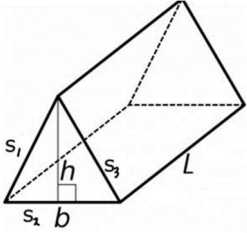
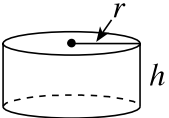
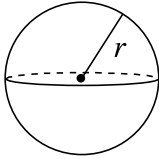
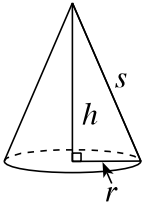
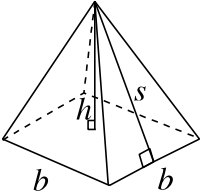
**Apprenticeship Math 12  
FORMULA SHEET**

Name: \_\_\_\_\_

**2D Shapes**

Shape	Perimeter	Area
Square 	$P = 4s$	$A = s^2$
Rectangle 	$P = 2l + 2w$ or $P = 2(l + w)$	$A = lw$
Triangle 	$P = a + b + c$	$A = \frac{bh}{2}$
Circle 	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

### 3D Objects

Object	Surface Area	Volume
Rectangular Prism 	$SA = 2wh + 2lw + 2lh$ or $SA = 2(wh + lw + lh)$	$V = lwh$
Triangular Prism 	$SA = bh + L(s_1 + s_2 + s_3)$	$V = \frac{bh}{2} \times L$ or $V = \frac{bhL}{2}$
Cylinder 	$SA = 2\pi r^2 + 2\pi r h$	$V = \pi r^2 h$
Sphere 	$SA = 4\pi r^2$ or $SA = \pi d^2$	$V = \frac{4}{3}\pi r^3$ or $V = \frac{4\pi r^3}{3}$
Cone 	$SA = \pi r^2 + \pi r s$	$V = \frac{1}{3}\pi r^2 h$ or $V = \frac{\pi r^2 h}{3}$
Square-Based Pyramid 	$SA = b^2 + 2bs$	$V = \frac{1}{3}b^2 h$ or $V = \frac{b^2 h}{3}$

rectangular-based pyramid  
 $V = \frac{lwh}{3}$