GRADE 11 FORMULA SHEET

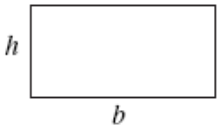
You may use the following formulas to solve problems on this test.

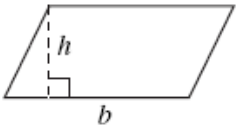
Area of a Square

$A = s^2$

Area of a Rectangle or a Parallelogram

$A = bh$

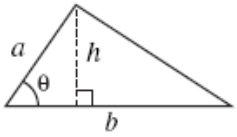




Area of a Triangle

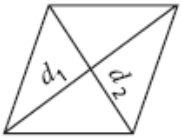
$A = \frac{1}{2} bh$

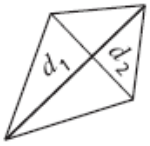
$A = \frac{1}{2} ab \sin \theta$



Area of a Rhombus or a Kite

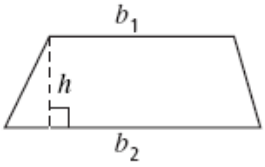
$A = \frac{1}{2} d_1 d_2$





Area of a Trapezoid

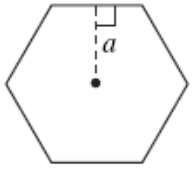
$A = \frac{1}{2} h(b_1 + b_2)$



Area of a Regular Polygon

$A = \frac{1}{2} Pa$

where P is the perimeter and a is the apothem.



Area of a Circle and Circumference of a Circle

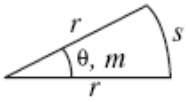
$A = \pi r^2$

$C = 2\pi r$

Length of an Arc of a Circle and Area of a Sector of a Circle

$s = \frac{m}{360} C$ $\quad A_{sector} = \frac{m}{360} A_{circle}$ $\quad m$ = degrees

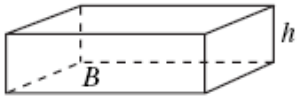
$s = r\theta$ $\quad A = \frac{1}{2} r^2 \theta$ $\quad \theta$ = radians

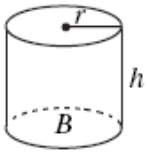


Volume of a Prism or a Cylinder

$V = Bh$

where B is the area of the base

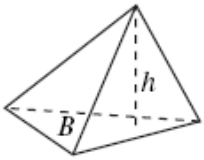


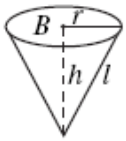


Volume of a Pyramid or a Cone

$V = \frac{1}{3} Bh$

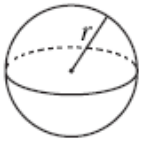
where B is the area of the base





Volume of a Sphere

$V = \frac{4}{3} \pi r^3$

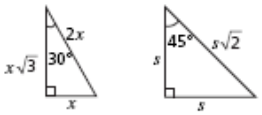


Pythagorean Theorem	Distance Formula	Quadratic Formula
$a^2 + b^2 = c^2$	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Direct Variation	Indirect Variation
$y = kx$	$y = \frac{k}{x}$

Combination of n Things Taken r at a Time	Permutation of n Things Taken r at a Time
${}_nC_r = \binom{n}{r} = \frac{n(n-1)(n-2)\ldots\ldots}{r!(n-r)!} = \frac{n!}{r!(n-r)!}$	${}_nP_r = \frac{n!}{(n-r)!}$

Special Triangles



Trigonometric Relations

$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\quad \tan\theta = \frac{\text{opposite}}{\text{adjacent}}$, $\tan\theta = \frac{\sin\theta}{\cos\theta}$

$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\quad \sin^2\theta + \cos^2\theta = 1$