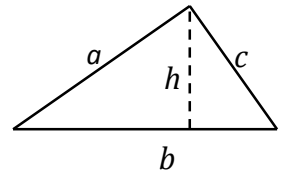
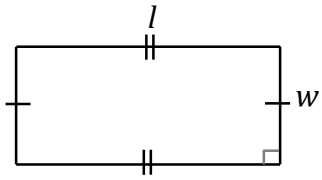
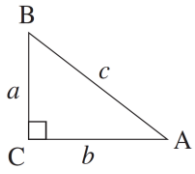
NAIT Placement and Equivalency Testing

Math 10C, Math 20-1 & Math 30-1 Formula Sheet (double sided)

MATH 10C & MATH 20-1

Basic Geometry	Quadratics
 Perimeter $= a + b + c$ Area $= \frac{1}{2}(b)(h)$  Perimeter $= 2l + 2w$ Area $= l \cdot w$	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Trigonometry	Linear Equations
(calculator in Degree Mode) • **Right Triangles** $a^2 + b^2 = c^2$ $\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$ $\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan A = \frac{\text{opposite}}{\text{adjacent}}$ 	The equation of a line: $y = mx + b$ $y - y_1 = m(x - x_1)$ $Ax + By + C = 0$ The slope of a line: $m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$

Please Note:

The Math 30 Formula Sheet is on the reverse side of this page.

Quadratic Formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Logarithms:

$\log_a(M \times N) = \log_a M + \log_a N$

$\log_a M^n = n \log_a M$

Growth/Decay Formula:

$$y = ab^{\frac{t}{p}}$$

$\log_a \left(\frac{M}{N}\right) = \log_a M - \log_a N$

$\log_b c = \frac{\log_a c}{\log_a b}$

Trigonometry:

$\theta = \frac{s}{r}$ $\quad \sec\theta = \frac{1}{\cos\theta}$ $\quad \csc\theta = \frac{1}{\sin\theta}$ $\quad \cot\theta = \frac{1}{\tan\theta}$ $\quad \tan\theta = \frac{\sin\theta}{\cos\theta}$ $\quad \cot\theta = \frac{\cos\theta}{\sin\theta}$

$\sin^2\theta + \cos^2\theta = 1$ $\quad 1 + \tan^2\theta = \sec^2\theta$ $\quad 1 + \cot^2\theta = \csc^2\theta$

$\cos(A + B) = \cos A \cos B - \sin A \sin B$ $\quad \sin(A + B) = \sin A \cos B + \cos A \sin B$

$\cos(A - B) = \cos A \cos B + \sin A \sin B$ $\quad \sin(A - B) = \sin A \cos B - \cos A \sin B$

$\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$ $\quad \tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$

$\cos 2\theta = \cos^2\theta - \sin^2\theta$ $\quad \cos 2\theta = 2\cos^2\theta - 1$ $\quad \cos 2\theta = 1 - 2\sin^2\theta$

$\sin 2\theta = 2\sin\theta\cos\theta$ $\quad \tan 2\theta = \frac{2\tan\theta}{1 - \tan^2\theta}$

Permutations, Combinations & Binomial Theorem:

$${}_nP_r = \frac{n!}{(n-r)!} \qquad {}_nC_r = \frac{n!}{(n-r)!r!}$$

In the expansion of $(x+y)^n$, the general term is: $t_{(k+1)} = {}_nC_k \; x^{(n-k)}y^k$