MBF 3CI Exam Formulae

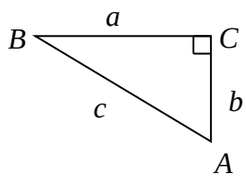
Your calculator must be in DEGREE mode!

Unit 1: Trigonometry

Pythagorean Theorem:

For any right triangle *ABC*,

$$c^2 = a^2 + b^2$$

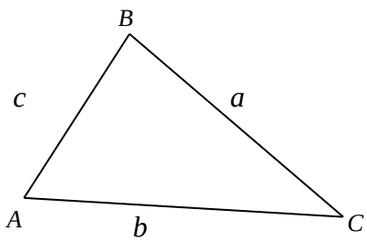


Primary Trig Ratios:

For any right triangle *ABC*, at angle *A*,

SOH	CAH	TOA
$\sin A = \frac{opposite}{hypotenuse}$	$\cos A = \frac{adjacent}{hypotenuse}$	$\tan A = \frac{opposite}{adjacent}$

The Sine Law: For any triangle *ABC*,

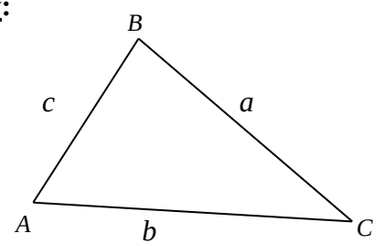


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

AND

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

The Cosine Law:



For any triangle *ABC*,

$a^2 = b^2 + c^2 - 2bc \cos A$ **AND** $b^2 = a^2 + c^2 - 2ac \cos B$ **AND** $c^2 = a^2 + b^2 - 2ab \cos C$

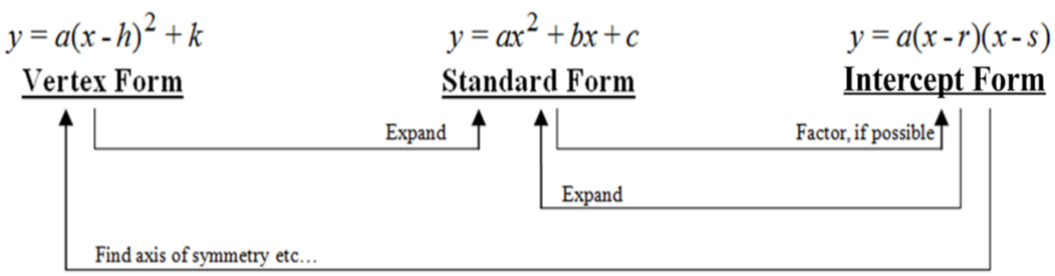
$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ **AND** $\cos B = \frac{a^2 + c^2 - b^2}{2ac}$ **AND** $\cos C = \frac{a^2 + b^2 - c^2}{2ab}$

Unit 3: One-Variable Statistics

Steps to find the Standard Deviation:

1. Calculate the mean
2. Find the difference between each value and the mean
3. Square each difference from Step 2
4. Add all of the squares from Step 3
5. Divide the sum from Step 4 by how many pieces of data there are; this is the variance
6. Calculate the square root of the value from Step 5; this is the standard deviation

Units 4, 5 & 6: Relations: Quadratic and Exponential



Remember: the general formula for an exponential relation is: $y = a\left(b^x\right)$

Unit 7: Compound Interest and Personal Finance

Simple Interest: $I = Prt$ **Compound Interest:** $A = P(1 + i)^n$ **Both:** $A = P + I$

The Rule of 72*: $\frac{72}{\text{interest rate}} = \text{how many years it will take to double}$

* in this formula do NOT convert the percent to a decimal