## Quadratic Equation

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| The order of the equation depends on the highest power of the variable. | eg. This is a second order algebraic equation: $ax^2+bx+c=0$ |
| The constants with the variables are called coefficients. | here, a and b are coefficients of $x^2$ and x |
| The solution can be given by the quadratic formula: | $x=(-b\pm\sqrt{(b^2-4ac)})/2a$ |

## Binomial Theorem

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|---|---|
| For any positive integral index n: | $(x+a)^n={}^nC_0x^n+{}^nC_1x^{n-1}a+...+{}^nC_na^n$ |
| where a is a constant and | ${}^nC_r=n!/\ r!(n-r)!$ |
| the expansion of n! is | n!=nx(n-1)x(n-2)...3x2x1 |

## Trigonometric Ratios

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|---|---|---|---|---|---|
| Angle x | $0^o=0$ | $30^o=\pi/6$ | $45^o=\pi/4$ | $60^o=\pi/3$ | $90^o=\pi/2$ |
| sin x | 0 | 1/2 | $1/\sqrt{2}$ | $\sqrt{3}/2$ | 1 |
| cos x | 1 | $\sqrt{3}/2$ | $1/\sqrt{2}$ | 1/2 | 0 |
| tan x | 0 | $1/\sqrt{3}$ | 1 | $\sqrt{3}$ | $\infty$ |
| 1 radian= | $180/\pi$ | $1^o=$ | 60' minutes of arc | 1'= | 60" seconds of arc |

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