BALABHADRA SKILL DEVELOPMENT ACADEMY
MATHS FORMULA - 19

EQUATIONS

Sl	Situation	Formula
1	An equation in which the degree of the polynomial (in some unknown variables) on either side of equality sign is not more than ____ is known as linear equation.	1
2	A linear equation in which the number of unknown variables is one is known as _____.	Linear equation in one variable
3	A linear equation in which number of unknown variables are two, is known as _____.	Linear equation in two variable
4	For equation ax+b=0	$x = \frac{-b}{a}$
5	Let $a_1x+b_1y+c_1=0$ and $a_2x+b_2y+c_2=0$ represent a system of 2 linear equations in 2 unknowns. Then, by Camer's rule	$\frac{x}{b_1c_2 - b_2c_1} = \frac{y}{c_1a_2 - c_2a_1} = \frac{1}{a_1b_2 - a_2b_1}$ $x = \frac{b_1c_2-b_2c_1}{a_1b_2-a_2b_1}$ and $y = \frac{c_1a_2-c_2a_1}{a_1b_2-a_2b_1}$
6	For two linear equations, $p_1x + q_1y + r_1 = 0$ and $p_2x + q_2y + r_2 = 0$, then	if $\frac{p_1}{p_2} \neq \frac{q_1}{q_2}$ there is unique solution
		if $\frac{p_1}{p_2} = \frac{q_1}{q_2} \neq \frac{r_1}{r_2}$ there is no solution
		if $\frac{p_1}{p_2} = \frac{q_1}{q_2} = \frac{r_1}{r_2}$ there are infinitely many solution
7	A general quadratic equation can be written in form of	$ax^2 + bx + c = 0$
8	Discriminant	$D = b^2 - 4ac$

9	A quadratic equation $ax^2 + bx + c = 0$ has	(i) two distincit real roots, if D>0 (ii) one real root, if D=0, GIVEN BY –b/2a (iii) no real roots, if b^2-4ac<0 (iv) the reciprocal roots, if a=c (v) both roots equal to zero, if b=0,c=0 (vi) negative and reciprocal roots, if c=-a (vii) one root is equal to zero, if c=0
10	If $ax^2 + bx + c = 0$ is a quadratic equation, then	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
11	If the equation $ax^2 + bx + c = 0$ has the roots $\propto$ and β, then the equation having the roots $\frac{1}{\propto}$ and $\frac{1}{\beta}$ is	$cx^2 + bx + a = 0$
12	If the equation $ax^2 + bx + c = 0$ has the roots $\propto$ and β, then the equation having the roots $\propto \pm A$ and $\beta \pm A$ is	$\alpha(x \mp A)^2 + b(x \mp A) + c = 0$
13	If $\propto$ and β are the roots of the equation $ax^2 + bx + c = 0$, then the equation having the roots $A \propto$ and $A\beta$ is	$ax^2 + Abx + A^2c = 0$
14	In a quadratic equation $ax^2 + bx + c = 0$, if a+b+c=0, then roots are	1 and c/a
	if a-b+c=0, then roots are	-1 and –c/a