ΤΥΠΟΛΟΓΙΟ ΜΑΘΗΜΑΤΙΚΑ

ΟΡΙΖΟΥΣΕΣ

ΟΡΙΖΟΥΣΑ 2x2

$$A=\begin{vmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{vmatrix}=a_{11}a_{22}-a_{21}a_{12}$$

ΟΡΙΖΟΥΣΑ 3x3 ΑΝΑΠΤΥΓΜΑ ΩΣ ΠΡΟΣ ΤΑ ΣΤΟΙΧΕΙΑ ΤΗΣ 1ης ΓΡΑΜΜΗΣ

$$A=\begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix}=a_{11}\begin{vmatrix} a_{22} & a_{23} \\ a_{32} & a_{33} \end{vmatrix}-a_{12}\begin{vmatrix} a_{21} & a_{23} \\ a_{31} & a_{33} \end{vmatrix}+a_{13}\begin{vmatrix} a_{21} & a_{22} \\ a_{31} & a_{32} \end{vmatrix}$$

ΜΕΘΟΔΟΣ CRAMER

$$a_1x+b_1y+c_1z=d_{11}$$
$$a_2x+b_2y+c_2z=d_2$$
$$a_3x+b_3y+c_3z=d_3$$

$$D_x=\begin{vmatrix} d_1 & b_1 & c_1 \\ d_2 & b_2 & c_2 \\ d_3 & b_3 & c_3 \end{vmatrix} \quad D_y=\begin{vmatrix} a_1 & d_1 & c_1 \\ a_2 & d_2 & c_2 \\ a_3 & d_3 & c_3 \end{vmatrix} \quad D_z=\begin{vmatrix} a_1 & b_1 & d_1 \\ a_2 & b_2 & d_2 \\ a_3 & b_3 & d_3 \end{vmatrix} \quad x=\frac{D_x}{D},\ y=\frac{D_y}{D},\ z=\frac{D_z}{D}$$

ΠΑΡΑΓΩΓΟΙ

ΠΑΡΑΓΩΓΟΙ ΒΑΣΙΚΩΝ ΣΥΝΑΡΤΗΣΕΩΝ		ΠΑΡΑΓΩΓΟΙ ΣΥΝΘΕΤΩΝ ΣΥΝΑΡΤΗΣΕΩΝ	
f(x)	**f ΄(x)**	**f(g(x))**	**f (g(x))΄**
c (σταθερά)	0		
x	1	$cf(x)$	$cf'(x)$
$x^a, \alpha \in \mathbb{R}^*, x>0$	αx^{a-1}	$f(x)^a, \alpha \in \mathbb{R}^*, x>0$	$\alpha f(x)^{a-1} f'(x)$
$\sin x$	$\cos x$	$\sin f(x)$	$\cos f(x) f'(x)$
$\cos x$	$-\sin x$	$\cos f(x)$	$-\sin f(x) f'(x)$
$\tan x$	$\frac{1}{\cos^2 x}$	$\tan f(x)$	$\frac{1}{\cos^2 f(x)} f'(x)$
$tagx$	$-\frac{1}{\sin^2 x}$	$tagf(x)$	$-\frac{1}{\sin^2 f(x)} f'(x)$
e^x	e^x	$e^{f(x)}$	$e^{f(x)} f'(x)$
$\ln x$	$\frac{1}{x}, x \neq 0$	$\ln f(x)$	$\frac{1}{f(x)} f'(x)$
$\sqrt{x}, x>0$	$\frac{1}{2\sqrt{x}}$	$\sqrt{f(x)}, x>0$	$\frac{1}{2\sqrt{f(x)}} f'(x)$
$\frac{1}{x}, x \neq 0$	$-\frac{1}{x^2}$	$\frac{1}{f(x)}, x \neq 0$	$-\frac{1}{f(x)^2} f'(x)$
$\arctan x$	$\frac{1}{1+x^2}$	$\arctan f(x)$	$\frac{1}{1+f(x)^2} f(x)'$

ΚΑΝΟΝΕΣ ΠΑΡΑΓΩΓΙΣΗΣ

$$(c\cdot f)'(x)=cf'(x)$$

$$(f+g)'(x)=f'(x)+g'(x)$$

$$(f-g)'(x)=f'(x)-g'(x)$$

$$(f\cdot g)'(x)=f'(x)g(x)+f(x)g'(x)$$

$$\left(\frac{f}{g}\right)'(x)=\frac{f'(x)g(x)-f(x)g'(x)}{[g(x)]^2}$$

ΟΛΟΚΛΗΡΩΜΑΤΑ

ΠΑΡΑΓΟΥΣΕΣ ΒΑΣΙΚΩΝ ΣΥΝΑΡΤΗΣΕΩΝ	ΠΑΡΑΓΟΥΣΕΣ ΣΥΝΘΕΤΩΝ ΣΥΝΑΡΤΗΣΕΩΝ
$\int_{\alpha}^{\beta} 1dx = [\mathrm{x}]_{\alpha}^{\beta} = \beta - \alpha$	
$\int_{\alpha}^{\beta} \mathrm{x}^{\kappa} dx = \left[\frac{\mathrm{x}^{\kappa+1}}{\kappa+1}\right]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} f(x)^{\kappa} f'(x)dx = \left[\frac{(f(x))^{\kappa+1}}{\kappa+1}\right]_{\alpha}^{\beta}$
$\int_{\alpha}^{\beta} \frac{1}{x} dx = [\ln x]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} \frac{1}{f(x)} f'(x)dx = [\ln f(x)]_{a}^{\beta}$
$\int_{\alpha}^{\beta} e^{x} dx = [e^{x}]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} e^{f(x)} f'(x)dx = [e^{f(x)}]_{a}^{\beta}$
$\int_{\alpha}^{\beta} \sigma\upsilon\nu x dx = [\eta\mu x]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} \sigma\upsilon\nu f(x) f'(x)dx = [\eta\mu f(x)]_{a}^{\beta}$
$\int_{\alpha}^{\beta} \eta\mu x dx = [-\sigma\upsilon\nu x]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} \eta\mu f(x) f'(x)dx = [-\sigma\upsilon\nu f(x)]_{\alpha}^{\beta}$
$\int_{\alpha}^{\beta} \frac{1}{\sigma\upsilon\nu^{2} x} dx = [\varepsilon\varphi x]_{a}^{\beta}$	$\int_{\alpha}^{\beta} \frac{1}{\sigma\upsilon\nu^{2} f(x)} f'(x)dx = [\varepsilon\varphi f(x)]_{a}^{\beta}$
$\int_{\alpha}^{\beta} \frac{1}{\eta\mu^{2} x} dx = [-\sigma\varphi x]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} \frac{1}{\eta\mu^{2} f(x)} f'(x)dx = [-\sigma\varphi f(x)]_{\alpha}^{\beta}$
$\int_{\alpha}^{\beta} \frac{1}{2\sqrt{x}} \mathrm{dx} = [\sqrt{\mathrm{x}}]_{\alpha}^{\beta}$	$\int_{\alpha}^{\beta} \frac{1}{2\sqrt{f(x)}} f'(x)\mathrm{dx} = [\sqrt{f(\mathrm{x})}]_{\alpha}^{\beta}$
$\int_{a}^{\beta} \frac{1}{x^{2}} dx = \left[-\frac{1}{x}\right]_{a}^{\beta}$	$\int_{a}^{\beta} \frac{1}{f(x)^{2}} f'(x)dx = \left[-\frac{1}{f(x)}\right]_{a}^{\beta}$
$\int_{a}^{\beta} \frac{1}{1+x^{2}} dx = [\arctan x]_{a}^{\beta}$	$\int_{a}^{\beta} \frac{1}{1+f(x)^{2}} f(x)' dx = [\arctan f(x)]_{a}^{\beta}$

ΟΡΙΣΜΟΣ	ΙΔΙΟΤΗΤΕΣ	
$\int_{\alpha}^{\beta} f(x)dx = [F(x)]_{\alpha}^{\beta} = F(\beta) - F(a)$	$\int_{\alpha}^{\beta} cdx = c(\beta - \alpha)$	$\int_{\alpha}^{\alpha} f(x)dx = 0$
ΠΑΡΑΓΟΝΤΙΚΗ ΟΛΟΚΛΗΡΩΣΗ	$\int_{\alpha}^{\beta} f(x)dx = -\int_{\beta}^{\alpha} f(x)dx$	$\int_{\alpha}^{\beta} f(x)dx = \int_{\alpha}^{\gamma} f(x)dx + \int_{\gamma}^{\beta} f(x)dx$
$\int_{\alpha}^{\beta} f'(x)\mathrm{g}(\mathrm{x})dx = [f(x)\mathrm{g}(\mathrm{x})]_{\alpha}^{\beta} - \int_{\alpha}^{\beta} f(x)\mathrm{g}'(\mathrm{x})dx$	$\int_{\alpha}^{\beta} [\lambda f(x) + \mu \mathrm{g}(\mathrm{x})]dx = \lambda \int_{\alpha}^{\beta} f(x)dx + \mu \int_{\alpha}^{\beta} \mathrm{g}(x)dx$	

ΜΙΓΑΔΙΚΟΙ

ΚΑΡΤΕΣΙΑΝΗ ΜΟΡΦΗ $z_1 = x_1 + y_1 i$ ΣΥΖΥΓΗΣ $\bar{z} = x - yi$

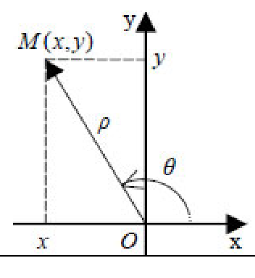
ΠΡΟΣΘΕΣΗ	$z_1 + z_2 = (x_1 + y_1 i) + (x_2 + y_2 i)$	**ΑΦΑΙΡΕΣΗ**	$z_1 - z_2 = (x_1 + y_1 i) - (x_2 + y_2 i)$

ΠΟΛΙΚΗ ΜΟΡΦΗ $z = \rho \underline{\vert\theta}$ ΣΥΖΥΓΗΣ $z = \rho \underline{\vert -\theta}$

ΠΟΛΛΑΠΛΑΣΙΑΜΟΣ	$z_1 z_2 = (\rho_1 \cdot \rho_2) \underline{\vert \theta_1 + \theta_2}$	**ΔΙΑΙΡΕΣΗ**	$z_1 / z_2 = (\rho_1 / \rho_2) \underline{\vert \theta_1 - \theta_2}$

ΔΥΝΑΜΕΙΣ ΦΑΝΤΑΣΤΙΚΗΣ ΜΟΝΑΔΑΣ

$$i^{n} = \begin{cases} 1 & ,\alpha\nu\ \nu = 4\kappa \\ i & ,\alpha\nu\ \nu = 4\kappa + 1 \\ -1 & ,\alpha\nu\ \nu = 4\kappa + 2 \\ -i & ,\alpha\nu\ \nu = 4\kappa + 3 \end{cases}$$



$$\rho = \sqrt{x^2 + y^2}$$

$$\theta = \tan^{-1}\left(\frac{y}{x}\right)$$