

REGULI DE DERIVARE

1. $(f + g)' = f' + g'$
2. $(c \cdot f)' = c \cdot f'$
3. $(f \cdot g)' = f' \cdot g + f \cdot g'$
4. $\left(\frac{f}{g}\right)' = \frac{f' \cdot g - f \cdot g'}{g^2}$
5. $(f \circ u)' = f'(u) \cdot u'$

| Funcția | Derivata | Mulțimea pe care funcția este derivabilă | Funcția compusă | Derivata |
|-------------------------------|---------------------------|---|-------------------------------|------------------------------------|
| C (constantă) | 0 | \mathbb{R} | - | - |
| x | 1 | \mathbb{R} | u | u' |
| x ⁿ | n · x ⁿ⁻¹ | \mathbb{R} | u ⁿ | n · u ⁿ⁻¹ · u' |
| x ^r | r · x ^{r-1} | (0; +∞) | u ^r | r · u ^{r-1} · u' |
| √x | $\frac{1}{2\sqrt{x}}$ | (0; +∞) | √u | $\frac{1}{2\sqrt{u}} u'$ |
| ln x | $\frac{1}{x}$ | (0; +∞) | ln u (u > 0) | $\frac{1}{u} u'$ |
| e ^x | e ^x | \mathbb{R} | e ^u | e ^u · u' |
| a ^x (a > 0; a ≠ 1) | a ^x · ln a | \mathbb{R} | a ^u (a > 0; a ≠ 1) | a ^u · ln a · u' |
| sin x | cos x | \mathbb{R} | sin u | (cos u) · u' |
| cos x | -sin x | \mathbb{R} | cos u | (-sin u) · u' |
| tgx | $\frac{1}{\cos^2 x}$ | $\mathbb{R} - \left\{ \frac{\pi}{2} + k\pi / k \in \mathbb{Z} \right\}$ | tg u | $\frac{1}{\cos^2 u} \cdot u'$ |
| ctgx | $-\frac{1}{\sin^2 x}$ | $\mathbb{R} - \{k\pi / k \in \mathbb{Z}\}$ | ctg u | $-\frac{1}{\sin^2 u} \cdot u'$ |
| arcsin x | $\frac{1}{\sqrt{1-x^2}}$ | (-1; 1) | arcsin u | $\frac{1}{\sqrt{1-u^2}} \cdot u'$ |
| arccos x | $-\frac{1}{\sqrt{1-x^2}}$ | (-1; 1) | arccos u | $-\frac{1}{\sqrt{1-u^2}} \cdot u'$ |
| arctgx | $\frac{1}{1+x^2}$ | \mathbb{R} | arctg u | $\frac{1}{1+u^2} \cdot u'$ |
| arcctgx | $-\frac{1}{1+x^2}$ | \mathbb{R} | arcctg u | $-\frac{1}{1+u^2} \cdot u'$ |