ТАБЛИЦЯ ПОХІДНИХ

	Елементарних функцій	Складених функцій
1.	$(c)' = 0$	$u = \varphi(x)$
2.	$(x^{\alpha})' = \alpha x^{\alpha-1}$	$(u^{\alpha})'_x = \alpha u^{\alpha-1} u'_x$
3.	$(\sqrt{x})' = \dfrac{1}{2\sqrt{x}}$	$(\sqrt{u})'_x = \dfrac{u_x}{2\sqrt{u}}$
4.	$\left(\dfrac{1}{x}\right)' = -\dfrac{1}{x^2}$	$\left(\dfrac{1}{u}\right)'_x = -\dfrac{u'_x}{u^2}$
5.	$(\sin x)' = \cos x$	$(\sin u)'_x = \cos u \cdot u'_x$
6.	$(\cos x)' = -\sin x$	$(\cos u)'_x = -\sin u \cdot u'_x$
7.	$(tg\ x)' = \dfrac{1}{\cos^2 x}$	$(tg\ u)'_x = \dfrac{u'_x}{\cos^2 u}$
8.	$(ctg\ x)' = -\dfrac{1}{\sin^2 x}$	$(ctg\ u)'_x = -\dfrac{u'_x}{\sin^2 u}$
9.	$(a^x)' = a^x \ln a$	$(a^u)'_x = a^u \ln a \cdot u'_x,\ a > 0,\ a \neq 1$
10.	$(e^x)' = e^x$	$(e^u)'_x = e^u u'_x$
11.	$(\ln|x|)' = \dfrac{1}{x}$	$(\ln|u|)'_x = \dfrac{u'_x}{u}$
12.	$(\log_a|x|)' = \dfrac{1}{x \ln a}$	$(\log_a|u|)'_x = \dfrac{u'_x}{u \ln a},\ a > 0,\ a \neq 1$
13.	$(\arcsin x)'_x = \dfrac{1}{\sqrt{1-x^2}}$	$(\arcsin u)'_x = \dfrac{u'_x}{\sqrt{1-u^2}}$
14.	$(\arccos x)'_x = -\dfrac{1}{\sqrt{1-x^2}}$	$(\arccos u)'_x = -\dfrac{u'_x}{\sqrt{1-u^2}}$
15.	$(arctg\ x)'_x = \dfrac{1}{1+x^2}$	$(arctg\ u)'_x = \dfrac{u'_x}{1+u^2}$
16.	$(arcctg\ x)'_x = -\dfrac{1}{1+x^2}$	$(arcctg\ u)'_x = -\dfrac{u'_x}{1+u^2}$

ТАБЛИЦЯ ІНТЕГРАЛІВ

1. $\int x^{\alpha} dx = \dfrac{x^{\alpha+1}}{\alpha+1} + C \ (\alpha \neq -1);$ при $\alpha = 0$ имеем $\int dx = x + C$.

2. $\int \dfrac{dx}{x} = \ln|x| + C$.

3. $\int \sin x \, dx = -\cos x + C$.

4. $\int \cos x \, dx = \sin x + C$.

5. $\int \dfrac{dx}{\cos^2 x} = tg \, x + C$.

6. $\int \dfrac{dx}{\sin^2 x} = -ctg \, x + C$.

7. $\int \dfrac{dx}{\sqrt{1-x^2}} = \arcsin x + C$.

8. $\int \dfrac{dx}{1+x^2} = arctg \, x + C$.

9. $\int a^x \, dx = \dfrac{a^x}{\ln a} + C, \ a > 0, \ a \neq 1.$

10. $\int e^x \, dx = e^x + C$.

11. $\int tg \, x \, dx = -\ln|\cos x| + C$.

12. $\int ctg \, x \, dx = \ln|\sin x| + C$.

13. $\int \dfrac{dx}{\sin x} = \ln \left| \cos ec \ x - ctg \ x \right| + C = \ln \left| tg \dfrac{x}{2} \right| + C$.

14. $\int \dfrac{dx}{\cos x} = \ln \left| \sec x + tg \ x \right| + C = \ln \left| tg \left(\dfrac{x}{2} + \dfrac{\pi}{4} \right) \right| + C$.

15. $\int \dfrac{dx}{a^2 + x^2} = \dfrac{1}{a} arctg \dfrac{x}{a} + C, \ a \neq 0.$

16. $\int \dfrac{dx}{a^2 - x^2} = \dfrac{1}{2a} \ln \left| \dfrac{a+x}{a-x} \right| + C, \ a \neq 0.$

17. $\int \dfrac{dx}{x^2 - a^2} = \dfrac{1}{2a} \ln \left| \dfrac{x-a}{x+a} \right| + C, \ a \neq 0.$

18. $\int \dfrac{dx}{\sqrt{a^2 - x^2}} = \arcsin \dfrac{x}{a} + C, \ |x| < a, \ a \neq 0.$

19. $\int \dfrac{dx}{\sqrt{x^2 \pm a^2}} = \ln \left| x + \sqrt{x^2 \pm a^2} \right| + C.$

20. $\int \sqrt{x^2 + a^2} \, dx = \dfrac{x}{2} \sqrt{x^2 + a^2} + \dfrac{a^2}{2} \ln \left| x + \sqrt{x^2 + a^2} \right| + C.$

21. $\int \sqrt{x^2 - a^2} \, dx = \dfrac{x}{2} \sqrt{x^2 - a^2} - \dfrac{a^2}{2} \ln \left| x + \sqrt{x^2 - a^2} \right| + C.$