Worksheet of self-control

Application of basic formulas of indefinite integrals

Identify the appropriate answer/answers for every integral and fill in the formula applied

Nr	Exercise	Identificator of correct answer	Formula
1	$\int 4x^3\,dx$		
2	$2\int(\sqrt{x}+sinx)\,dx$		
3	$\int \frac{5}{9+x^2}\,dx$		
4	$\int\left(6^x+\frac{2}{x}\right)dx$		
5	$\int x^4\cdot\sqrt[3]{x^4}dx$		
6	$\frac{1}{\sqrt{3}}\int\frac{3dx}{sin^2x}$		
7	$\int\sqrt{\frac{8}{x^2-8}}dx$		
8	$\int 7chx\,dx$		
9	$\int\frac{3^x}{3}dx$		
10	$\int\frac{6dx}{11\sqrt{36-x^2}}$		

Possible answers

A. $\frac{1}{3}\cdot 3^x\cdot\frac{1}{ln3}+C$; B. $-\sqrt{3}cotx+C$; C. $5arctanx+C$; D. x^4+C; E. $7shx+C$;

F. $\frac{1}{\sqrt{x}}-2cosx+C$; G. $2\sqrt{2}ln\left|x+\sqrt{x^2-8}\right|+C$; H. $1\frac{2}{3}arctan\frac{x}{3}+C$;

I. $\frac{6}{11}arcsin\frac{x}{6}+C$; J. $\frac{4}{3}x^{3/2}+2(-cosx)+C$; K. $\frac{x^5}{5}\cdot\frac{(\sqrt[3]{x})^5}{5}+C$; L. $\frac{6^x}{ln6}+2lnx+C$;

M. $2\left(\frac{2\sqrt{x^3}}{3}-cosx\right)+C$; N. $\frac{3^x}{ln27}+C$; O. $12x^2+C$; P. $\frac{3}{19}\cdot x^{\frac{19}{3}}+C$; Q. $\frac{3}{\sqrt{3}}(-cotx)+C$

R. $3x^6\cdot\frac{\sqrt[3]{x}}{19}+C$

Answers

No	Exercise	Identificator of correct answer	Formula
1	$\int 4x^3\,dx$	D	$\int x^n dx=\frac{x^n}{n+1}+C$
2	$2\int(\sqrt{x}+sinx)\,dx$	J, M	$\int x^n dx=\frac{x^n}{n+1}+C;\ \int sinxdx=-cosx+C$
3	$\int\frac{5}{9+x^2}\,dx$	H	$\int\frac{dx}{a^2+x^2}=\frac{1}{a}arctan\frac{x}{a}+C$
4	$\int\left(6^x+\frac{2}{x}\right)dx$	L	$\int a^x dx=\frac{a^x}{lna}+C;\ \int\frac{dx}{x}=lnx+C$
5	$\int x^4\cdot\sqrt[3]{x^4}dx$	P, R	$\int x^n dx=\frac{x^n}{n+1}+C$
6	$\frac{1}{\sqrt{3}}\int\frac{3dx}{sin^2x}$	B, Q	$\int\frac{dx}{sin^2x}=-cotx+C$
7	$\int\sqrt{\frac{8}{x^2-8}}dx$	G	$\int\frac{dx}{\sqrt{x^2-a^2}}=ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert+C$
8	$\int 7chx\,dx$	E	$\int chx\,dx=shx+C$
9	$\int\frac{3^x}{3}dx$	A, N	$\int a^x dx=\frac{a^x}{lna}+C$
10	$\int\frac{6dx}{11\sqrt{36-x^2}}$	I	$\int\frac{dx}{\sqrt{a^2-x^2}}=arcsin\frac{x}{a}+C$