INTEGRALI (Foglio 1) **Data: _____**

1. Calcola i seguenti integrali indefiniti:

$a)\int 5x^6 dx \qquad b)\int \sqrt[5]{x}dx \qquad c)\int (-\frac{1}{\sqrt[4]{x}})dx \qquad d)\int\left(-\frac{1}{\sqrt[n]{x}}\right)dx$

$e)\int \frac{dx}{\sqrt{x\sqrt{x}}}dx \qquad f)\int \frac{1}{\sqrt{1+x}}dx \qquad g)\int \sqrt{x+a}\,dx \qquad h)\int tg^2 x\,dx$

$i)\int \frac{x+2}{\sqrt[3]{x^2}}\,dx \qquad l)\int \frac{1}{sin^2 x\cos^2 x}dx \qquad m)\int \frac{6-x}{\sqrt{x}}\,dx$

2. Calcola i seguenti integrali indefiniti:

$a)\int \frac{\sqrt{x^3}+x}{\sqrt[5]{x^4}}dx \qquad b)\int \frac{1}{1+x}dx \qquad c)\int \frac{1}{x}\log^2 x\,dx \qquad d)\int e^x sinx\,dx$

$e)\int \frac{arc\tan x}{1+x^2}dx \qquad f)\int e^x(x^2-3)\,dx \qquad g)\int \frac{sinx}{\cos x+2}\,dx \qquad h)\int x^2\log x\,dx$

$i)\int \frac{e^x}{e^x+1}\,dx \qquad l)\int \log\frac{x-1}{x+1}dx \qquad m)\int \frac{1}{(1+x^2)\,arc\tan x}\,dx \qquad n)\int \frac{1}{x-\sqrt{x}}dx$

3. Calcola i seguenti integrali indefiniti:

$a)\int \log\frac{x}{x+1}dx \qquad b)\int \frac{\log(x^2-1)}{x^2}dx \qquad c)\int \frac{\cos x+\sin x}{\sin x-\cos x+1}dx$

$d)\int \arctan\frac{x+1}{x-2}dx \qquad e)\int \frac{2tg\ x}{1+tgx}dx \qquad f)\int \frac{\sin x}{\cos x+1}dx$

$g)\int \log(x^2-3x+2)dx \qquad h)\int \frac{\log x}{(1-x)^2}dx \qquad i)\int \frac{e^x+2}{e^{2x}-1}dx$

4. Calcola i seguenti integrali indefiniti:

$a)\int \frac{2x}{(x-1)(x-2)}dx \qquad b)\int \frac{4}{x^2(x-4)}dx \qquad c)\int \frac{x^3}{x^2-1}dx$

$d)\int \frac{5}{x^2+x+3}dx \qquad e)\int \frac{4x-3}{x^2+2x+2}dx$

4. Queste sono le soluzioni dell'esercizio 4 . Controllane la correttezza:

$a)\, y = -2\log|x-1| + 4\log|x-2| + C$

$b)\, y = -\frac{1}{4}\log|x| + \frac{1}{x} - \frac{1}{4}\log|x-4| + C$

$c)\, y = \frac{1}{2}x^2 + \frac{1}{2}\log|x^2-1| + C$

$d)\, y = \frac{10}{\sqrt{11}}\,arc\tan\frac{2x+1}{\sqrt{11}} + C$

$e)\, y = 2\log(x^2+x+2) - \frac{10}{\sqrt{7}}\,arc\tan\frac{2x+1}{\sqrt{7}} + C$