

أسئلة عامة فى طرق التكامل

أوجد التكاملات التالية :-

(1) $\int (5x^{-1} + \cos x) dx$

(2) $\int \left(\pi \left(\sec \left(\frac{x}{2} - 1 \right) \right)^2 + \frac{3}{x^2} \right) dx$

(3) $\int (\sqrt{x} - \sqrt[3]{x}) dx$

(4) $\int \left(\frac{1}{3} \sin(1 - 5x) - \frac{1}{x^2} \right) dx$

(5) $\int \left(\left(\sin \frac{1}{2} x \right)^2 - \frac{1}{\sqrt{x}} \right) dx$

(6) $\int (\sec x)^2 (1 - (\tan x)^2) dx$

(7) $\int x^2 \sec x^3 \tan x^3 dx$

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(8) $\int \frac{x^5 + x^3 + 3x}{x^2} dx$

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(9) $\int \frac{x^2 - 3}{x - \sqrt{3}} dx$

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(10) $\int \frac{x - \sqrt{x} - 2}{\sqrt{x} - 2} dx$

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(11) $\int \frac{x^5 + x^3 + 3x}{x^2} dx$

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(12) $\int (\sqrt{x} - 1) \left(\frac{1}{\sqrt{x}} + 1 \right) dx$

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$$(13) \int \frac{(\tan x)^2}{(\sin x)^2} dx$$

$$(14) \int x \times \sqrt[3]{1-x^2} dx$$

$$(15) \int \frac{x}{\sqrt{1-x}} dx$$

$$(16) \int \frac{\sin x}{\sqrt{\cos x}} dx$$

$$(17) \int \left(\frac{1}{\sqrt{x}} - \sqrt{x} \right)^2 dx$$

$$(18) \int \frac{1}{\sqrt{x}(1+\sqrt{x})} dx$$

$$(19) \int_e^{e^2} \frac{dx}{x\sqrt{\ln x}}$$

(20) $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$

(21) $\int \frac{1 + (\sin x)^2}{(\cos x)^2} dx$

(22) $\int \frac{(\sin x)^2}{1 + \cos x} dx$

(23) $\int \frac{1 + \cos x}{(\sin x)^2} dx$

(24) $\int \frac{1}{1 - \cos x} dx$

(25) $\int (\sec x)^4 dx$

(26) $\int (\sin x)^4 dx$

(27) $\int (\sin x)^3 dx$

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(28) $\int \sec x dx$

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(29) $\int (\tan x)^3 dx$

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(30) $\int (\sin x)^2 (\cos x)^2 dx$

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(31) $\int \frac{1}{(\cos x)^2 (\sin x)^2} dx$

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(32) $\int (\tan x)^4 dx$

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(33) $\int (\tan x)^5 (\sec x)^4 dx$

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(34) $\int \frac{\sin \sqrt{x}}{\sqrt{x}} dx$

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(35) $\int \frac{e^{5x} - e^{3x} + 1}{e^{4x}} dx$

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(36) $\int \frac{e^{2x} - e^x}{e^x - 1} dx$

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(37) $\int \frac{e^{2x} - 1}{e^x + 1} dx$

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(38) $\int \frac{e^{3x}}{e^{3x} - 1} dx$

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(39) $\int \frac{e^x}{2(e^x - 1)^3} dx$

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(40) $\int \frac{1}{e^x} dx$

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(41) $\int \frac{\left(\csc \frac{1}{x}\right)^2}{x^2} dx$

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(42) $\int \frac{\sin x + \cos x}{\cos x - \sin x} dx$

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(43) $\int \frac{\cos(\ln x)}{x} dx$

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(44) $\int \cot x \ln(\sin x) dx$

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(45) $\int \tan x \ln(\cos x) dx$

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(46) $\int \frac{2x}{(1+3x^2)^5} dx$

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(47) $\int \frac{x}{1+x^2} dx$

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(48) $\int \frac{x}{x^2-5x+6} dx$

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(49) $\int \frac{x-1}{x^2-4x+3} dx$

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(50) $\int \frac{x}{x-1} dx$

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(51) $\int \frac{1}{x \ln x} dx$

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(52) $\int \frac{1}{x(\ln x)^2} dx$

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(53) $\int \frac{e^x}{(e^x + 1) \ln(1 + e^x)} dx$

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(54) $\int e^8 dx$

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(55) $\int \cos \pi e^{\sin \pi} dx$

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(56) $\int_{-1}^1 e^{|x|} dx$

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(57) $\int e^{5 \ln(1-x)} dx$

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(58) $\int (e^x - e^{-x})(e^x + e^{-x}) dx$

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(59) $\int \sqrt{x^2 + 4x + 4} dx$: $x > 3$

(60) $\int_0^2 (x^2 - |x - 1|) dx$

(61) $\int \frac{d}{dx} (\ln|x^2 - x|) dx$

(62) $\frac{d}{dx} \int (x e^{x^2+1}) dx$

(63) $\lim_{x \rightarrow 0^+} \left(\int \frac{1}{x} dx \right)$

(64) $\int (x^2 + 2x + 1)^5 dx$

$$(65) \int_2^3 \frac{1}{\sqrt{x^2 + 2x + 1}} dx$$

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$$(66) \int \frac{\ln x}{x\sqrt{1 + \ln x}} dx$$

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$$(67) \int \left(\lim_{x \rightarrow 1} (e^x + \ln x) \right) dx$$

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$$(68) \int \left(\frac{\sqrt{x} + \ln x}{x} \right) dx$$

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$$(69) \int \left(\frac{1}{x + x \ln x^2} \right) dx$$

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$$(70) \int_{-2}^2 \sqrt{2 + |x|} dx$$

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(71) $\int_2^4 \left(\frac{x+6}{x^2+5x-6} \right) dx$

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(72) $\int \left(\frac{\ln\left(\frac{1}{x}\right)}{x} \right) dx$

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(73) $\int \left(\frac{1}{x} \ln(x^3) \right) dx$

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(74) $\int x^3 \sin x dx$

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(75) $\int (e^{\sqrt{x}}) dx$

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(76) $\int (\cos \sqrt{x}) dx$

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