

แบบฝึกหัด เรื่อง การหาปริพันธ์โดยการแทนค่า

1. จงหาค่าปริพันธ์ต่อไปนี้

1.1 $\int (3x+5)^2(3)dx$

1.2 $\int (6x-1)^2(6)dx$

1.3 $\int (x^2-5)^4(2x)dx$

1.4 $\int (x^6+1)^5(6x^5)dx$

1.5 $\int (3x^3+1)^{-2}(9x^2)dx$

1.6 $\int 5e^{5x}dx$

1.7 $\int 3x^2e^{x^3}dx$

1.8 $\int \frac{2x}{1+x^2}dx$

1.9 $\int \frac{5}{5x-7}dx$

1.10 $\int 4x^3\sqrt{1+x^4}dx$

1.11 $\int 2x(x^2+9)^{-1/2}dx$

1.12 $\int (x+3)^{10}dx$

1.13 $\int (7-6x)^{-2}dx$

1.14 $\int xe^{x^2}dx$

1.15 $\int e^{-0.01x}dx$

1.16 $\int \frac{1}{5x+4}dx$

1.17 $\int e^{1-x}dx$

1.18 $\int \frac{3}{2-x}dx$

1.19 $\int \frac{x}{(3x^2+1)^4}dx$

1.20 $\int \frac{x^2}{(x^3-2)^5}dx$

1.21 $\int x\sqrt{x+4}dx$

1.22 $\int x\sqrt{x-9}dx$

1.23 $\int \frac{x}{\sqrt{x-3}}dx$

1.24 $\int x(x-4)^9dx$

1.25 $\int e^{2x}(1+e^{2x})^3dx$

1.26 $\int e^{-x}(1-e^{-x})^4dx$

1.27 $\int \frac{1+x}{4+2x+x^2}dx$

1.28 $\int \frac{x-1}{x^3-3x+7}dx$

1.29 $\int \frac{(\ln x)^3}{x}dx$

1.30 $\int \frac{e^x}{1+e^x}dx$

1.31 $\int \frac{1}{x\ln x}dx$

1.32 $\int \frac{1}{x^2}e^{-1/x}dx$

1.33 $\int x(3^{x^2})dx$

1.34 $\int \frac{\ln(x-5)}{x-5}dx$

1.35 $\int \frac{e^x+e^{-x}}{(e^x-e^{-x})^2}dx$

1.36 $\int 5^{\frac{\ln x}{x}} \left(\frac{1-\ln x}{x^2} \right) dx$

2. จงหาค่าปริพันธ์ต่อไปนี้

2.1 $\int x(3+x^2)^4 dx$

2.2 $\int (5x-1)^3 dx$

2.3 $\int \cos(\pi x) dx$

2.4 $\int \sec 3x \tan 3x dx$

2.5 $\int \frac{x^2}{\sqrt[3]{x^3+4}} dx$

2.6 $\int \frac{2x}{(x^2+1)^5} dx$

2.7 $\int \sin^6 t \cos t dt$

2.8 $\int \cos 3t \sqrt{1-\sin 3t} dt$

2.9 $\int \frac{\sin\left(\frac{1}{x}\right) dx}{x^2}$

2.10 $\int \frac{\sin(3+\sqrt{x})}{\sqrt{x}} dx$

2.11 $\int \sin(\sin t) \cos t dt$

2.12 $\int x e^{-5x^2} dx$

2.13 $\int \frac{x^3}{\sqrt{x^2+1}} dx$

2.14 $\int \cot x dx$

2.15 $\int \frac{1}{\sin x + 1} dx$

คำตอบแบบฝึกหัดข้อ 2

2.1 $\frac{(3+x^2)^5}{10} + c$ 2.2 $\frac{(5x-1)^4}{20} + c$ 2.3 $\frac{\sin(\pi x)}{\pi} + c$ 2.4 $\frac{\sec 3x}{3} + c$

2.5 $\frac{(x^3+4)^{2/3}}{2} + c$ 2.6 $-\frac{1}{4(x^2+1)^4} + c$ 2.7 $\frac{\sin^7 x}{7} + c$ 2.8 $-\frac{2}{9}(1-\sin 3t)^{3/2} + c$

2.9 $\cos\left(\frac{1}{x}\right) + c$ 2.10 $-2\cos(3+\sqrt{x}) + c$ 2.11 $-\cos(\sin t) + c$ 2.12 $-\frac{e^{-5x^2}}{10} + c$

2.13 $\frac{(x^2+1)^{3/2}}{3} - \sqrt{x^2+1} + c$ 2.14 $-\ln|\operatorname{cosec} x| + c$ 2.15 $\tan x - \sec x + c$