

1. Kismi integrasyon kullanarak asagidaki indirgeme bagintilarini ispatlayiniz.

$$(a) \int \tan^n x dx = \frac{\tan^{n-1} x}{n-1} - \int \tan^{n-2} x dx.$$

$$(b) \int \frac{dx}{(a^2 + x^2)^n} = \frac{x}{2a^2(n-1)(a^2 + x^2)^{n-1}} + \frac{2n-3}{2a^2(n-1)} \int \frac{dx}{(a^2 + x^2)^{n-1}} \quad n \neq 1.$$

$$2. \int \sqrt{\frac{x}{x+1}} dx$$

$$3. \int \frac{x + \sqrt[4]{x-4}}{x - \sqrt{x-4}} dx$$

$$4. \int \frac{\sqrt[3]{\frac{x+3}{x-3}} + 1}{(\sqrt[3]{\frac{x+3}{x-3}} - 1)(x-3)} dx$$

$$5. \int \frac{8x+5}{\sqrt{10-4x+4x^2}} dx$$

$$6. \int \frac{dx}{(x-2)\sqrt{x^2-4x+3}} dx$$

$$7. \int \frac{x^2-4x+1}{\sqrt{-x^2+4x-1}} dx$$

8. $\int \frac{dx}{(x+2)^3 \sqrt{x^2+2x-2}}$

9. $\int \frac{\sqrt{x}}{(1+\sqrt[3]{x})^2} dx$

10. $\int x^{1/3}(1+x^{-2/3})^{1/4} dx$

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