Aufgabe 1

Berechnen Sie die Integrale:

a) $\int 8x^3 dx$

b) $\int \left(x^6 - 3x^5 + 7x^3\right) dx$

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

d) $\int \sqrt{x}\, dx$

Lösung 1

a) $\int 8x^3 dx = 2x^4 + c$

b) $\int x^6 - 3x^5 + 7x^3 dx \ = \frac{1}{7}x^7 - \frac{1}{2}x^6 + \frac{7}{4}x^4 + c$

c) $\int \frac{1}{3x^2} + \frac{1}{4}x\, dx = \int \frac{1}{3}x^{-2} + \frac{1}{4}x\, dx = -\frac{1}{3}x^{-1} + \frac{1}{8}x^2 + c$

d) $\int \sqrt{x}\, dx = \int x^{\frac{1}{2}}\, dx = \frac{2}{3}x^{\frac{3}{2}} + c$