Calculus I
Indefinite integral of rational monomial, part 4

Todor Milev

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Example

Integrate.

$$\int \frac{1}{\sqrt[3]{x^4}} \mathrm{d}x$$

Example

Integrate.

$$\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x = \int x^{?}\ \mathrm{d}x$$

Example

Integrate.

$$\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x = \int x^{-\frac{4}{3}}\mathrm{d}x$$

Example

Integrate.

$$\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x = \int x^{-\frac{4}{3}}\mathrm{d}x$$

$$= \textbf{?}$$

Example

Integrate.

$$\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x = \int x^{-\frac{4}{3}}\mathrm{d}x$$

$$= \frac{x^{-\frac{4}{3}+1}}{-\frac{3}{4}+1}$$

Example

Integrate.

$$\begin{aligned}\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x &= \int x^{-\frac{4}{3}}\mathrm{d}x \\ &= \frac{x^{-\frac{4}{3}+1}}{-\frac{3}{4}+1} + C\end{aligned}$$

Example

Integrate.

$$\begin{aligned}\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x &= \int x^{-\frac{4}{3}}\mathrm{d}x \\ &= \frac{x^{-\frac{4}{3}+1}}{-\frac{3}{4}+1}+C \\ &= \frac{x^{-\frac{1}{3}}}{-\frac{1}{3}}+C\end{aligned}$$

Example

Integrate.

$$\begin{aligned}
\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x &= \int x^{-\frac{4}{3}}\mathrm{d}x \\
&= \frac{x^{-\frac{4}{3}+1}}{-\frac{3}{4}+1} + C \\
&= \frac{x^{-\frac{1}{3}}}{-\frac{1}{3}} + C \\
&= -3x^{-\frac{1}{3}} + C
\end{aligned}$$

Example

Integrate.

$$\begin{aligned}
\int \frac{1}{\sqrt[3]{x^4}}\mathrm{d}x &= \int x^{-\frac{4}{3}}\mathrm{d}x \\
&= \frac{x^{-\frac{4}{3}+1}}{-\frac{3}{4}+1} + C \\
&= \frac{x^{-\frac{1}{3}}}{-\frac{1}{3}} + C \\
&= -3x^{-\frac{1}{3}} + C
\end{aligned}$$