

Calculus 7 1 Integrating By Part

Lesson 325 | Calculus BC | Integration by parts

<https://www.youtube.com/watch?v=2Pmw6KZ55lc>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Find an antiderivative of $(4 \cdot x + 3) \cdot \exp(3 \cdot x)$.

02 Find an antiderivative of $(13 \cdot x + 6) \cdot \exp(6 \cdot x)$.

03 Find an antiderivative of $(3 \cdot x + 7) \cdot \exp(2 \cdot x)$.

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04

Find an antiderivative of $(13 \cdot x + 12) \cdot \exp(6 \cdot x)$.

05

Find an antiderivative of $(11 \cdot x + 6) \cdot \exp(4 \cdot x)$.

06

Find an antiderivative of $(14 \cdot x + 12) \cdot \exp(2 \cdot x)$.

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01 Find an antiderivative of $(4 \cdot x + 3) \cdot \exp(3 \cdot x)$.

Use $u=4x+3$ and $dv=e^{(3x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(12 \cdot x + 5) \cdot \exp(3 \cdot x)/9 + C$. Differentiate to check.

02 Find an antiderivative of $(13 \cdot x + 6) \cdot \exp(6 \cdot x)$.

Use $u=13x+6$ and $dv=e^{(6x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(78 \cdot x + 23) \cdot \exp(6 \cdot x)/36 + C$. Differentiate to check.

03 Find an antiderivative of $(3 \cdot x + 7) \cdot \exp(2 \cdot x)$.

Use $u=3x+7$ and $dv=e^{(2x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(6 \cdot x + 11) \cdot \exp(2 \cdot x)/4 + C$. Differentiate to check.

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04 Find an antiderivative of $(13 \cdot x + 12) \cdot \exp(6 \cdot x)$.

Use $u=13x+12$ and $dv=e^{(6x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(78 \cdot x + 59) \cdot \exp(6 \cdot x)/36 + C$. Differentiate to check.

05 Find an antiderivative of $(11 \cdot x + 6) \cdot \exp(4 \cdot x)$.

Use $u=11x+6$ and $dv=e^{(4x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(44 \cdot x + 13) \cdot \exp(4 \cdot x)/16 + C$. Differentiate to check.

06 Find an antiderivative of $(14 \cdot x + 12) \cdot \exp(2 \cdot x)$.

Use $u=14x+12$ and $dv=e^{(2x)}dx$ in $\int u \, dv=uv-\int v \, du$. An antiderivative is $(14 \cdot x + 5) \cdot \exp(2 \cdot x)/2 + C$. Differentiate to check.