

Calculus 7 8 Improper Integrals

Lesson 320 | Calculus BC | Improper integrals

<https://www.youtube.com/watch?v=AweZ0-NTdns>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Determine convergence and evaluate $\int$ from 3 to ∞ of $5/x^6$ dx.

02

Determine convergence and evaluate $\int$ from 9 to ∞ of $5/x^5$ dx.

03

Determine convergence and evaluate $\int$ from 5 to ∞ of $10/x^6$ dx.

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04

Determine convergence and evaluate $\int$ from 14 to ∞ of $2/x^6$ dx.

05

Determine convergence and evaluate $\int$ from 12 to ∞ of $7/x^2$ dx.

06

Determine convergence and evaluate $\int$ from 10 to ∞ of $8/x^4$ dx.

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01

Determine convergence and evaluate $\int$ from 3 to ∞ of $5/x^6$ dx.

Since $p=6>1$, the integral converges. Antiderivative = $-5/((5)x^5)$. The upper limit tends to zero, giving $1/243$.

02

Determine convergence and evaluate $\int$ from 9 to ∞ of $5/x^5$ dx.

Since $p=5>1$, the integral converges. Antiderivative = $-5/((4)x^4)$. The upper limit tends to zero, giving $5/26244$.

03

Determine convergence and evaluate $\int$ from 5 to ∞ of $10/x^6$ dx.

Since $p=6>1$, the integral converges. Antiderivative = $-10/((5)x^5)$. The upper limit tends to zero, giving $2/3125$.

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04

Determine convergence and evaluate $\int$ from 14 to ∞ of $2/x^6$ dx.

Since $p=6>1$, the integral converges. Antiderivative = $-2/((5)x^5)$. The upper limit tends to zero, giving $1/1344560$.

05

Determine convergence and evaluate $\int$ from 12 to ∞ of $7/x^2$ dx.

Since $p=2>1$, the integral converges. Antiderivative = $-7/((1)x^1)$. The upper limit tends to zero, giving $7/12$.

06

Determine convergence and evaluate $\int$ from 10 to ∞ of $8/x^4$ dx.

Since $p=4>1$, the integral converges. Antiderivative = $-8/((3)x^3)$. The upper limit tends to zero, giving $1/375$.