The Definite Integral

ex. 1 Evaluate $\int_2^5 x^2\,dx$

$\left[\frac{x^3}{3}\right]_2^5$ or $\left.\frac{x^3}{3}\right|_2^5$

$\int_2^5 x^2\,dx = \frac{5^3}{3} - \frac{2^3}{3}$

$= \frac{125}{3} - \frac{8}{3}$

$= \frac{117}{3}$

ex. 2 Evaluate $\int_{-2}^{3} (6x^2 - 5)\,dx$

$\left[2x^3 - 5x\right]_{-2}^{3}$

$2(3)^3 - 5(3) - \left(2(-2)^3 - 5(-2)\right)$

$54 - 15 - (-16 + 10)$

45

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