INTEGRAL DAN PENGGUNAAN

Oleh : Danang Mursita

Matematika untuk Perguruan Tinggi - http://www.biobses.com/judul-buku,300-matematika_untuk_perguruan_tinggi.html

Materi yang dibahas pada bab ini meliputi : Integral Tak Tentu, Notasi Sigma, Integral Tentu, penggunaan integral : Luas Daerah, Volume Benda Putar dan Panjang Kurva

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3.1. Integral Tak Tentu

Fungsi F(x) disebut **anti turunan** dari f(x) pada selang I bila F '(x) = f(x) untuk 2setiap x $\in$ I - bila x merupakan titik ujung dari selang I maka F'(x) cukup merupakan turunan sepihak (turunan kanan atau turunan kiri). Proses mencari anti turunan disebut **integrasi (integral).** Notasi yang dugunakan untuk menyatakan integral adalah: $\int f(x)dx = F(x) + C$ Bentuk integral ini disebut **integral tak tentu**.

Dari rumus untuk turunan fungsi yang diperoleh pada pembahasan bab sebelumnya dapat diturunkan beberapa rumus integral tak tentu sebagai berikut :

1. $\int x^r \, dx = \frac{x^{r+1}}{r+1} + C \; ; \; r \neq -1$
2. $\int [f(x)]^r f'(x)dx = \frac{[f(x)]^{r+1}}{r+1} + C \; ; \quad r \neq -1$
3. $\int \left[f(u)\frac{du}{dx} \right] dx = \int f(u)du$

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