

Integration Properties

p. 366 - 373 (5.3)

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1. If f is defined at $x = a$, then $\int_a^a (f(x)) dx = 0$.
 2. If f is integrable on $[a,b]$, then $\int_b^a (f(x)) dx = -\int_a^b (f(x)) dx$
 3. If f is integrable and determined by a, b, c (closed intervals), then $\int_a^c (f(x)) dx = \int_a^b (f(x)) dx + \int_b^c (f(x)) dx$.
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Evaluate the integrals.

**1. What are all the values of k for which $\int_{(-3)}^k x^2 dx = 0$?

2. $\int_0^5 \left(\frac{-(x)}{3} + 4 \right) dx$

3. $\int_0^1 \left(5 - 3x\sqrt{1-x^2} \right) dx$

**4. If $\int_1^{10} (f(x)) dx = 4$ and $\int_{10}^3 (f(x)) dx = 7$, then

$\int_1^3 (f(x)) dx = ?$