

Notes: Definite Integrals

Integration Day 4

■ Sometimes you find an approximate (past 2 days)

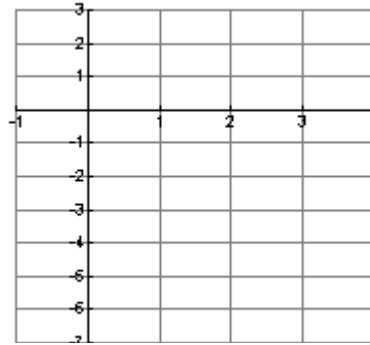
■ Sometimes you can find the exact.

→ When you integrate you are finding the _____ between the function and the x - axis.

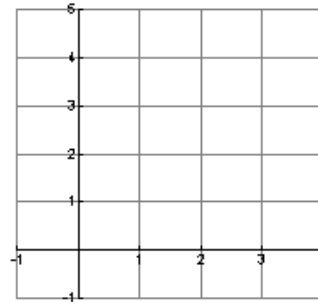
→ Area _____ the x - axis is _____.

→ Area _____ the x - axis is _____.

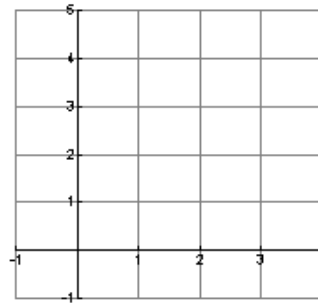
Example One: $\int_0^3 2x - 5 \, dx$



Example Two: $\int_0^4 |3 - x| \, dx$



Example Three: $\int_0^3 \sqrt{9 - x^2} \, dx$



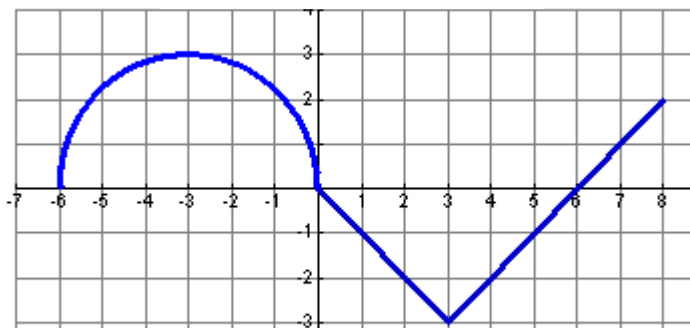
Example Four:

A. $\int_{-6}^0 f(x) \, dx$

B. $\int_0^6 f(x) \, dx$

C. $\int_6^8 f(x) \, dx$

D. $\int_6^8 f(x) \, dx$



Rules for Integration

1. $-\int_a^b f(x) dx =$ _____

2. $\int_a^a f(x) dx =$ _____

$$-\int_a^b f(x) dx =$$

$$\int_a^a f(x) dx$$

Example 5: $\int_0^1 f(x) dx = 2$ $\int_0^2 f(x) dx = 8$ $\int_1^4 f(x) dx = 4$

A. $\int_0^2 f(x) dx =$

B. $\int_2^2 f(x) dx =$

C. $\int_1^2 f(x) dx =$

D. $\int_0^4 f(x) dx =$

E. $\int_2^4 f(x) dx =$

Example 6: $\int_0^5 f(x) dx = 8$ $\int_0^5 g(x) dx = -2$

A. $\int_0^5 f(x) + g(x) dx =$

B. $\int_0^5 3f(x) - 2g(x) dx =$

C. $\int_0^5 5f(x) dx =$

D. $\int_5^0 g(x) dx =$