



**Properties of Definite Integrals**

1. Given  $\int_0^5 f(x) dx = 10$  and  $\int_5^7 f(x) dx = 3$ , find

a)  $\int_0^7 f(x) dx = 10 + 3 = \boxed{13}$

b)  $\int_5^0 f(x) dx = -\int_0^5 f(x) dx = -(10) = \boxed{-10}$

c)  $\int_5^5 f(x) dx = \boxed{0}$  b/c  $\int_a^a f(x) dx = 0$

d)  $\int_0^5 3f(x) dx = 3 \int_0^5 f(x) dx = 3(10) = \boxed{30}$

2. Given  $\int_2^6 f(x) dx = 10$  and  $\int_2^6 g(x) dx = -2$ , find

a)  $\int_2^6 [f(x) + g(x)] dx = 10 - 2 = \boxed{8}$

b)  $\int_2^6 [g(x) - f(x)] dx = -2 - 10 = \boxed{-12}$

c)  $\int_2^6 2g(x) dx = 2 \int_2^6 g(x) dx = 2(-2) = \boxed{-4}$

d)  $\int_2^6 [2f(x) - 3g(x)] dx = 2(10) - 3(-2) = \boxed{26}$

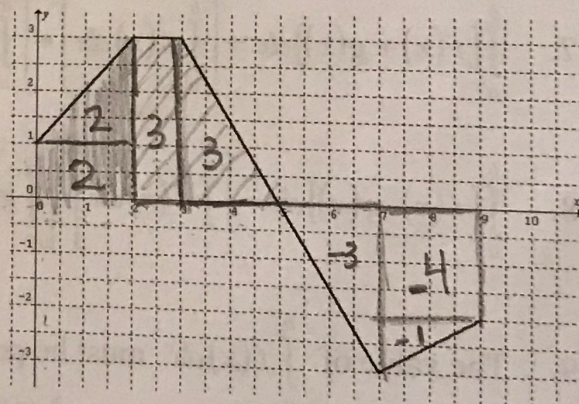
3. The graph of  $f(x)$  is shown. Evaluate each integral by interpreting it in terms of areas.

a)  $\int_0^2 f(x) dx = \boxed{4u^2}$

b)  $\int_0^5 f(x) dx = \boxed{10u^2}$

c)  $\int_5^7 f(x) dx = \boxed{-3u^2}$

d)  $\int_0^9 f(x) dx = 10 - 8 = \boxed{2u^2}$

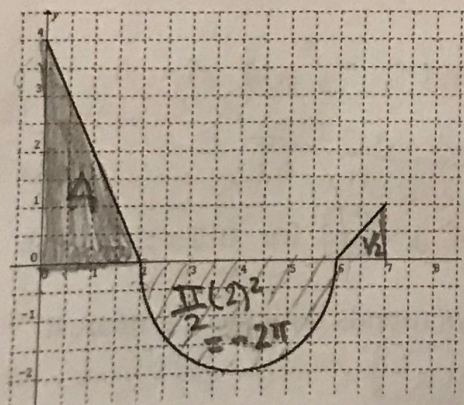


4. The graph of  $g(x)$  is shown. Evaluate each integral by interpreting it in terms of areas.

a)  $\int_0^2 g(x) dx = \boxed{4u^2}$

b)  $\int_2^6 g(x) dx = \boxed{-2\pi u^2}$

c)  $\int_0^7 g(x) dx = 4 - 2\pi + \frac{1}{2}$   
 $= \boxed{4.5 - 2\pi}$



(1)(1/2)