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QUIZ 11

MATH 200, SECTION 9
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1. Suppose f is a function defined on $[3,8]$ for which $\int_5^8 f(x)\,dx = 4$ and $\int_3^8 f(x)\,dx = 6$.

(a) Find $\int_3^5 f(x)\,dx$

$$\int_3^8 f(x)\,dx = \int_3^5 f(x)\,dx + \int_5^8 f(x)\,dx$$

$$6 = \int_3^5 f(x)\,dx + 4$$

$$\boxed{\int_3^5 f(x)\,dx = 2}$$

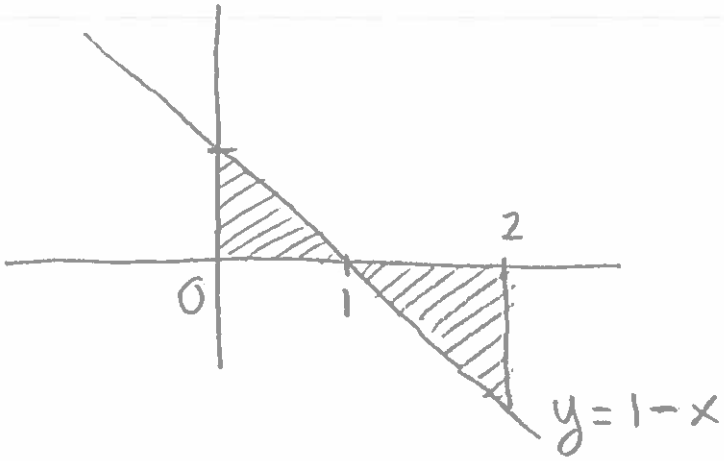
(b) Find $\int_5^3 2f(x)\,dx$

from part (a)

$$= 2\int_5^3 f(x)\,dx = -2\int_3^5 f(x)\,dx = -2 \cdot 2 = \boxed{-4}$$

2. Find $\int_0^2 (1-x)\,dx$

$$= A_{up} - A_{down} = \frac{1}{2}1\cdot 1 - \frac{1}{2}1\cdot 1 = \boxed{0}$$



3. A the graph of a function $f(x)$ is shown below. Find $\int_1^6 f(x)\,dx$.

$$\int_1^6 f(x)\,dx = A_{up} - A_{down}$$

$$= \left(\frac{1}{2}1\cdot 2 + 1\cdot 2 + \frac{1}{2}1\cdot 2\right) - \frac{1}{2}2\cdot 2$$

$$= 4 - 2 = \boxed{2}$$