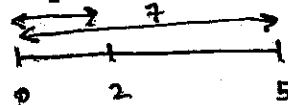


Name: _____

Quiz 19, section 5.2

1. (3 pts) A function $f(x)$ has the following properties: $\int_0^2 f(x) dx = 3$ and $\int_0^5 f(x) dx = 7$.

Find the value of $A = \int_2^5 f(x) dx$.



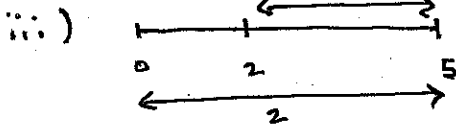
$$\begin{aligned}
 &= \int_0^5 f(x) dx \\
 &\quad - \int_0^2 f(x) dx \\
 &= 7 - 3 = 4
 \end{aligned}$$

2. (3 pts) A function $f(x)$ has the following properties: $\int_5^0 f(x) dx = -2$ and

$\int_5^2 f(x) dx = 1$. Find the value of $A = \int_0^2 f(x) dx$.

$$i) \int_0^5 f(x) dx = 2$$

$$ii) \int_2^5 f(x) dx = -1$$



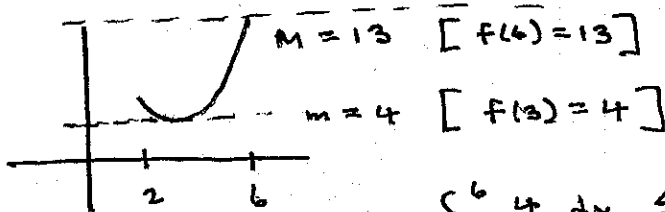
$$A = \int_0^2 f(x) dx$$

$$= \int_0^5 f(x) dx - \int_2^5 f(x) dx$$

$$= 2 - (-1)$$

$$= 3$$

3. (4 pts) Find an upper and a lower bound for $I = \int_2^6 (x-3)^2 + 4 dx$.



$$\int_2^6 4 dx \leq \int_2^6 (x-3)^2 + 4 dx \leq \int_2^6 13 dx$$

$4 \cdot (6-2)$
 $13 \cdot (6-2)$

$$16 \leq \int_2^6 (x-3)^2 + 4 dx \leq 52$$