#2.c $f(x) = 1 - \sqrt{x}$ $\quad 0 \le x \le 4$

$1 - \sqrt{x} = 0 \Rightarrow \sqrt{x} = 1 \Rightarrow \boxed{x = 1}$

$$\text{Area} = \left| \int_0^1 (1 - x^{1/2})\,dx \right| + \left| \int_1^4 (1 - x^{1/2})\,dx \right|$$

$$= x - \frac{2}{3}x^{3/2}\Big|_0^1 + \left[x - \frac{2}{3}x^{3/2}\Big|_1^4 \right]$$

$$= \left(1 - \frac{2}{3}\right) - 0 + \left| 4 - \frac{2}{3}\underbrace{4^{3/2}}_{8} - \left(1 - \frac{2}{3}\right) \right|$$

$$= \frac{1}{3} + \left| 4 - \frac{16}{3} - \frac{1}{3} \right|$$

$$= \frac{1}{3} + \left| \frac{12 - 16 - 1}{3} \right|$$

$$= \frac{1}{3} + \frac{5}{3}$$

$$= \frac{6}{3}$$

$$= 2$$