

$$4. \quad F(x) = \int_0^x f(t) dt$$

$$a) \quad \int_0^0 f(t) dt = [F(t)]_0^0 = F(0) - F(0) = 0 \\ \Rightarrow F(0) = 0$$

$$\int_0^2 f(t) dt = \frac{1}{2} \cdot \pi \cdot t^2 = \frac{1}{2} \cdot \pi \cdot 1^2 = \frac{1}{2} \pi \\ \Rightarrow F(2) = \frac{1}{2} \pi$$

$$\int_0^{-2} f(t) dt = - \int_{-2}^0 f(t) dt = - \left( \frac{1}{2} \cdot \pi \cdot t^2 \right) = - \left( \frac{1}{2} \cdot \pi \cdot 1^2 \right) = - \frac{1}{2} \pi \\ \Rightarrow F(-2) = -\frac{1}{2} \pi$$

b)

