

$$\int_0^{10} 4 \sin \frac{\pi t}{10} + \frac{2\pi}{5} \int_0^{10} 2t \sin \pi \left[\frac{\pi t}{10} \right]^2$$

$$\int_0^{10} \left[\frac{-40 \cos(\frac{\pi t}{10})}{\pi} + \left(\frac{2\pi}{5} + \pi t - 5 \sin \right. \right.$$

$$\left. \frac{\pi t}{5} \right]$$

$$\int_0^{10} \left[\frac{-40 \cos(\frac{\pi t}{10})}{\pi} + \frac{\pi t - 5 \sin(\frac{\pi t}{10})}{5} \right]$$

$$= \frac{-40 \cos(\frac{\pi(10)}{10})}{\pi} + \frac{\pi(10) - 5 \sin(\frac{\pi(10)}{10})}{5}$$

$$= \left[\frac{-40 \cos(\frac{2\pi}{10})}{\pi} + \frac{\pi(0) - 5 \sin(\frac{2\pi}{10})}{5} \right]$$

$$\left[\frac{40}{\pi} + 2\pi \right] - \left[\frac{-40}{\pi} + 0 \right]$$

$$\frac{40}{\pi} + 2\pi + \frac{40}{\pi}$$

$$\frac{80}{\pi} + 2\pi$$

→ 31.74 square units.