

Math 152 Quiz #5 Answers

1. Volume = $\int_0^1 2\pi x \cdot 3\sqrt{x} dx = \frac{12\pi}{5}$

2. Average value = $\frac{1}{2\pi} \int_0^{2\pi} 4x \sin(x) dx = -4$ (Integration by parts: $u = x$, $dv = \sin(x) dx$)

3. $\int t^2 \cdot e^{t+5} dt = t^2 e^{t+5} - 2t e^{t+5} + 2e^{t+5} + C$ (Int. by parts twice with $dv = e^{t+5} dt$ both times $\Rightarrow v = e^{t+5}$)