

MATH 141  
Problem 3 Key

$$\int_b^a 62.5(l-x)A(x)dx \text{ (2 points if nothing else)}$$

$$= \int_0^5 62.5(10-x)\pi x^2 dx \text{ (3 points for bounds, 3 points for } l, 6 \text{ points for } A(x))$$

$$= 62.5\pi \left[ \frac{10}{3}x^3 - \frac{1}{4}x^4 \right]_0^5 \text{ (6 points for integration)}$$

$$= 62.5\pi \left( \frac{1250}{3} - \frac{625}{4} \right)$$

$$= 62.5\pi \left( \frac{5000}{12} - \frac{1875}{12} \right)$$

$$= 62.5\pi \frac{3125}{12} \text{ (2 points for evaluation)}$$