

Homework III First-Half

Due in class Monday July 23 2017

1. Compute

$$\frac{d}{dx} \int_{2x+5}^0 e^{8t} dt$$

2. Compute the integral

$$\int_1^2 \frac{x^3 - 1}{x} dx$$

3. Prove the volume formula for a cone is

$$V = \frac{1}{3}\pi R^2 H$$

where R is the radius of the base circle and H is the height.

4. Compute the area of the region below $y = \ln x$ between $[1, e]$

5. Compute

$$\int x e^{-x} dx$$

6. Compute

$$\int_1^2 \sqrt{x} \ln x dx$$