Math 241, S17
Non-Quiz on 4.7, 5.3

Name: Soln's

Section:
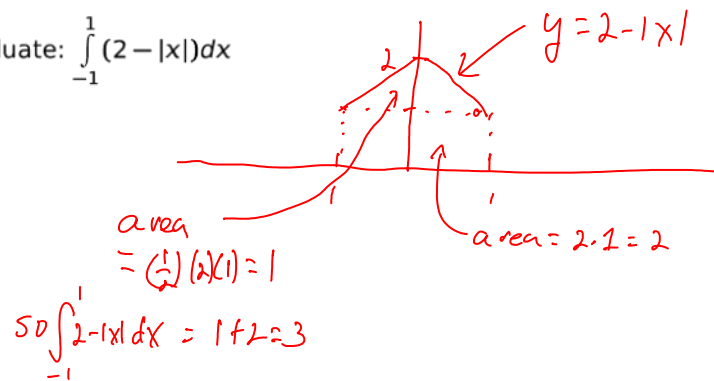
INSTRUCTIONS: Try to do this in 10 minutes. I will post answers.

(10) 1. Find the antiderivative for $\sin \pi x - 3 \sin 3x$

$$\int \sin \pi x - 3 \sin 3x \, dx = \int \sin \pi x \, dx - 3 \int \sin 3x \, dx$$

$$= \frac{-\cos \pi x}{\pi} - 3 \left(\frac{-\cos 3x}{3} \right) + C$$

$$= -\frac{1}{\pi} \cos \pi x + \cos 3x + C$$

(10) 2. $\int (\sqrt{x} + \sqrt[3]{x}) dx = ?$ $= \int x^{1/2} + x^{1/3} dx = \frac{x^{\frac{1}{2}+1}}{\frac{1}{2}+1} + \frac{x^{\frac{1}{3}+1}}{\frac{1}{3}+1} + C$

$$= \frac{2}{3} x^{3/2} + \frac{3}{4} x^{4/3} + C$$

(10) 3. Use area to evaluate: $\int_{-1}^{1} (2 - |x|) dx$

$y = 2 - |x|$

area
$= \left(\frac{1}{2}\right)(2)(1) = 1$

area $= 2 \cdot 1 = 2$

so $\int_{-1}^{1} 2 - |x| \, dx = 1 + 2 = 3$

(10) 4. $\int_0^{\sqrt[3]{7}} x^2 dx = ?$

$$= \left(\frac{x^3}{3} \Big|_0^{\sqrt[3]{7}} \right) = \frac{7 - 0}{3} = \frac{7}{3}$$