

Mat 131 Day 6

P346-7

#24

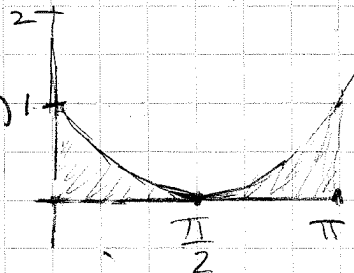
$$\int_{-\pi/4}^{\pi/4} (\sin x + \cos x) dx = -\cos x + \sin x \Big|_{-\pi/4}^{\pi/4} \\ = \left(-\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) - \left(-\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) = \underline{0}$$

3.

yes it is consistent w/picture - Net Area = 0

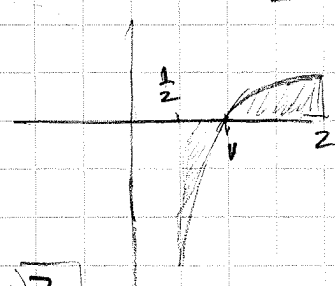
$$\#26 \int_0^{\pi} (1 - \sin x) dx = x + \cos x \Big|_0^{\pi} = (\pi - 1) - (0 + 1) \\ = \underline{\pi - 2}$$

3



$$\#30 \int_{1/2}^2 (1 - x^{-2}) dx = x + x^{-1} \Big|_{1/2}^2 \\ = (2 + 1/2) - (1/2 + 2) \\ = \underline{0}$$

3.



$$\#32 \int_0^{\ln 8} e^x dx = e^x \Big|_0^{\ln 8} = e^{\ln 8} - e^0 = 8 - 1 = \underline{7}$$

3

$$\#34 \int_0^4 x(x-2)(x-4) dx = \int_0^4 x^3 - 6x^2 + 8x dx = \frac{x^4}{4} - 2x^3 + 4x^2 \Big|_0^4 \\ = (64 - 128 + 64) - (0) \\ = \underline{0}$$

3

$$\#36 \int_0^{1/2} \frac{dx}{\sqrt{1-x^2}} = \arcsin x \Big|_0^{1/2} = \arcsin 1/2 - \arcsin 0 \\ = \frac{\pi}{6} - 0 = \underline{\pi/6}$$

3

$$\#40 \int_4^9 \frac{x - x^{1/2}}{x^3} dx = \int_4^9 x^{-2} - x^{-5/2} dx \\ = -x^{-1} + \frac{2}{3} x^{-3/2} \Big|_4^9 \\ = -\frac{1}{x} + \frac{2}{3x^{3/2}} \Big|_4^9 \\ = \left(-\frac{1}{9} + \frac{2}{81}\right) - \left(-\frac{1}{4} + \frac{2}{24}\right) = \frac{13}{162} \approx .0802$$

3.

$$\int_0^2 \sec^2\left(\frac{\pi x}{8}\right) dx = \frac{8}{\pi} \tan \frac{\pi x}{8} \Big|_0^2 = \frac{8}{\pi} \left[\tan \frac{\pi}{4} - \tan 0\right] \\ = \frac{8}{\pi} [1 - 0] = \frac{8}{\pi} (\approx 2.546)$$

3