

Name: _____

Find:

$$\begin{aligned} \text{a) } & \int_1^4 x^{9/2} dx \\ &= \frac{2}{11} x^{11/2} \Big|_1^4 \\ &= \frac{2}{11} (4^{11/2}) - \frac{2}{11} \\ &= \frac{2}{11} (2048) - \frac{2}{11} \\ &= \frac{4094}{11} \\ &\approx 372.18 \end{aligned}$$

$$\text{b) } \int_1^2 x(4-x^2)^4 dx$$

$$\begin{aligned} &= \frac{1}{2} \int_3^0 u^4 du \\ &= \frac{1}{2} \frac{u^5}{5} \Big|_3^0 \\ &= 0 + \frac{3^5}{10} \\ &= 24.3 \end{aligned}$$

$$\begin{aligned} u &= 4-x^2 \\ \frac{du}{dx} &= -2x \\ du &= -2x dx \\ -\frac{1}{2} du &= x dx \\ x=1 &\Rightarrow u=3 \\ x=2 &\Rightarrow u=0 \end{aligned}$$