Wednesday - December 16, 2015

$$\int \cos x\,dx = \sin x + C$$

$$\int -\cos x\,dx = -\sin x + C$$

(74) $$2\pi \int_{-1}^{0} x^2\sqrt{x+1}\,dx$$

$u = x+1 \rightarrow x = u-1$

$du = dx$

$$2\pi \int_0^1 (u-1)^2\sqrt{u}\,du = 2\pi \int_0^1 (u^2-2u+1)\sqrt{u}\,du$$

$$= 2\pi \int_0^1 u^{\frac{5}{2}} - 2u^{\frac{3}{2}} + u^{\frac{1}{2}}\,du$$

$$= 2\pi \left[\frac{2}{7}u^{\frac{7}{2}} - \frac{4}{5}u^{\frac{5}{2}} + \frac{2}{3}u^{\frac{3}{2}}\right]_0^1$$

(81) ① $\frac{4}{4}$ $\frac{5}{4}$ $\frac{6}{4}$ $\frac{7}{4}$ ② $\frac{8}{4}$

$f(x) = \frac{1}{1+x^3}$

$$\frac{1}{4}\,\frac{1}{2}\sum_{x=4}^{7} \frac{1}{1+\left(\frac{x}{4}\right)^3} + \frac{1}{1+\left(\frac{x+1}{4}\right)^3}$$

0 1

$\frac{0}{4}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$