

$$9. \frac{1}{2} \int_0^2 x - x^2 dx$$

$$\frac{1}{2} \left[\frac{x^2}{2} - \frac{x^3}{3} \right]_0^2$$

$$\frac{1}{2} \left[\frac{4}{2} - \frac{8}{3} - 0 \right]$$

$$\frac{1}{2} \left[2 - \frac{8}{3} \right]$$

$$1 - \frac{8}{6}$$

$$1 - \frac{4}{3}$$

$$\boxed{-\frac{1}{3}}$$

$$10. \frac{1}{\pi/2} \int_0^{\pi/2} \cos x dx$$

$$\frac{2}{\pi} \sin x \Big|_0^{\pi/2}$$

$$\frac{2}{\pi} \left[\sin \frac{\pi}{2} - \sin 0 \right]$$

$$\frac{2}{\pi} (1 - 0)$$

$$\boxed{\frac{2}{\pi}}$$

$$11. \frac{1}{5} \int_0^5 t \sqrt{1+t^2} \quad u = 1+t^2$$

$$du = 2t dt$$

$$\frac{1}{2} du = t dt$$

$$\frac{1}{2} \frac{1}{5} \int \sqrt{u} du$$

$$\frac{1}{10} \frac{u^{3/2}}{3/2}$$