

QUIZ #12 ANSWERS

$$\begin{aligned}\underline{\#1} \quad \int_0^1 (7x^8 + \sqrt{\pi}) dx &= 7 \cdot \frac{x^9}{9} + \sqrt{\pi} x \Big|_0^1 \\ &= \left(7 \cdot \frac{1}{9} + \sqrt{\pi}\right) - (0 + 0) \\ &= \boxed{\frac{7}{9} + \sqrt{\pi}}\end{aligned}$$

$$\underline{\#2} \quad \int \frac{x dx}{\sqrt{1-x^2}}$$

$$u = 1 - x^2$$

$$du = -2x dx$$

$$x dx = -\frac{1}{2} du$$

$$\int \frac{-\frac{1}{2} du}{u^{\frac{1}{2}}}$$

$$-\frac{1}{2} \int u^{-\frac{1}{2}} du = -\frac{1}{2} \cdot \frac{u^{\frac{1}{2}}}{\frac{1}{2}} + C = -u^{\frac{1}{2}} + C$$

$$= \boxed{-\sqrt{1-x^2} + C}$$