

You Try:

$$* 6) \frac{d}{dx} \int_2^x \left( \frac{3}{t+2} \right) dt = \frac{3}{x+2}$$

$$* 7) \frac{d}{dx} \int_0^x \sin^2(4t) dt = \sin^2(4x)$$

$$* 8) \frac{d}{dx} \int_x^\pi \cos^3(t) dt = - \frac{d}{dx} \int_\pi^x \cos^3(t) dt$$
$$= -\cos^3(x)$$

$$* 9) \frac{d}{dt} \int_t^0 \sqrt{4-z^2} dz = - \frac{d}{dt} \int_0^t \sqrt{4-z^2} dz$$
$$= -\sqrt{4-t^2}$$

$$10) \frac{d}{dx} \int_0^{x^2} \frac{1}{1+s^2} ds = \frac{1}{1+(x^2)^2} \cdot 2x$$
$$= \frac{2x}{1+x^4}$$