

$$10) g(x) = \int_1^x \ln(1+t^2) dt \quad \frac{dg}{dx} = \ln(1+(x)^2)(1) = \underline{\underline{\ln(1+x^2)}}$$

$$12) h(u) = \int_0^u \frac{\sqrt{t}}{t+1} dt \quad \frac{dh}{du} = \frac{\sqrt{u}}{(u)+1}(1) = \underline{\underline{\frac{\sqrt{u}}{u+1}}}$$

$$14) A(w) = \int_w^{-1} e^{t+t^2} dt = - \int_{-1}^w e^{(t+t^2)} dt$$

$$\frac{dA}{dw} = - e^{(w)+(w)^2}(1) = \underline{\underline{-e^{(w+w^2)}}}$$

$$16) h(x) = \int_1^{\sqrt{x}} \frac{z^2}{z^2+1} dz$$

$$p = \sqrt{x} \approx x^{\frac{1}{2}}$$

$$\frac{dp}{dx} = \left[\frac{1}{2} x^{-\frac{1}{2}} \right] = \frac{1}{2\sqrt{x}}$$

$$\frac{dh}{dx} = \frac{(\sqrt{x})^2}{(\sqrt{x})^2+1} \left(\frac{1}{2\sqrt{x}} \right) = \underline{\underline{\frac{x}{2\sqrt{x}(x+1)}}}$$

$$18) y = \int_0^{\tan x} e^{-t^2} dt$$

$$p = \tan x$$

$$\frac{dp}{dx} = [\sec^2 x (1)] = \sec^2 x$$

$$\frac{dy}{dx} = e^{-(\tan x)^2} (\sec^2 x) = \underline{\underline{\sec^2 x e^{-\tan^2 x}}}$$

$$20) \quad y = \int_{\frac{1}{x}}^4 \sqrt{1 + \frac{1}{t}} \, dt$$

$$= - \int_4^{\frac{1}{x}} \sqrt{1 + \frac{1}{t}} \, dt$$

$$p = \frac{1}{t} = t^{-1}$$

$$\frac{dp}{dt} = [-1 t^{-2}] = \frac{-1}{t^2}$$

5.3/2

$$\frac{dy}{dx} = - \sqrt{1 + \frac{1}{(\frac{1}{x})}} \left(\frac{-1}{x^2} \right) = - \sqrt{1 + x} \left(\frac{-1}{x^2} \right) = \frac{\sqrt{1+x}}{x^2}$$