

$$a) f(x) = \frac{\ln x}{x^2 + 1}$$

$$f'(x) = \frac{\frac{1}{x}(x^2 + 1) + \ln x \cdot (-2x)}{(x^2 + 1)^2}$$

$$b) A(x) = x^3 e^x \cos x$$

$$A'(x) = 3x^2 e^x \cos x + x^3 e^x \cos x + x^3 e^x (-\sin x)$$

$$c) h(x) = \sqrt{2x^3 + 3x^2}$$

$$h'(x) = \frac{1}{2\sqrt{2x^3 + 3x^2}} \cdot (6x^2 + 6x) = \frac{3x^2 + 3x}{\sqrt{2x^3 + 3x^2}}$$