

$$2) \quad (A) \quad y = 4x^5 - 5x^3 + \sqrt{x^3}$$

$$y' = 4(5x^4) - 5(3x^2) + \frac{3}{2}x^{1/2}$$

$$\boxed{y' = 20x^4 - 15x^2 + \frac{3}{2}\sqrt{x}}$$

$$(B) \quad G(x) = \frac{x^2 - 1}{x^2 + 1}$$

$$G'(x) = \frac{(x^2 + 1)(2x) - (x^2 - 1)(2x)}{(x^2 + 1)^2}$$

$$G'(x) = \frac{2x(x^2 + 1 - x^2 + 1)}{(x^2 + 1)^2}$$

$$G'(x) = \frac{2x(2)}{(x^2 + 1)^2}$$

$$\boxed{G'(x) = \frac{4x}{(x^2 + 1)^2}}$$

$$(C) \quad f(x) = 7^x \cdot 4^x$$

$$f'(x) = 7^x (\ln 4) 4^x + 4^x (\ln 7) 7^x$$

$$f'(x) = 7^x 4^x (\ln 4 + \ln 7)$$

$$f'(x) = 28^x (\ln 2^2 + \ln 7)$$

$$f'(x) = 28^x (2 \ln 2 + \ln 7)$$

$$\boxed{f'(x) = 2(\ln 2) 28^x + (\ln 7) 28^x}$$