CHECK YOUR UNDERSTANDING.

EXAMPLE 1: For the following functions compute the derivative, $f'(x)$

a) $f(x) = x^7 * \sin(x)$
b) $f(x) = e^x * \cos(x)$
c) $f(x) = 4^x * \sqrt{x}$

EXAMPLE 2: For the following functions compute the both the first and second derivative.

a) $f(x) = x^6 * \ln(x)$
b) $f(x) = \sin(x) * e^x$
c) $f(x) = \ln(x) * \cos(x)$

EXAMPLE 3: For the following functions compute the derivative, $f'(x)$

a) $f(x) = \sqrt[3]{x^5}\,(6x^2 + 5x - 1)$
b) $f(x) = \left(\ln(6x) * (x^3 - x^2 + x)\right)^2$
c) $f(x) = e^{x^2+2x-1} * (\ln(x^2))$

EXAMPLE 4: For the following functions compute the derivative, $f'(x)$

a) $f(x) = \frac{x^7}{\sin(x)}$

b) $f(x) = \frac{e^x}{\cos(x)}$

c) $f(x) = \frac{4^x}{\sqrt{x}}$

EXAMPLE 5: For the following functions compute the both the first and second derivative.

a) $f(x) = \frac{x^6}{\ln(x)}$

b) $f(x) = \frac{\sin(x)}{e^x}$

c) $f(x) = \frac{\ln(x)}{\cos(x)}$

EXAMPLE 6: For the following functions compute the derivative, $f'(x)$

a) $f(x) = \frac{x^2+7}{(x^3-3x+4)}$

b) $f(x) = \frac{12x^3-18x^2}{e^{6x}}$

c) $f(x) = \frac{\ln(7x)}{(x^4+3x^3-4x^2)}$