

3-2 WARM-UP

1. Fill in the blanks below:

(a) $\frac{d}{dx} [f(x) \cdot g(x)] =$

(b) $\frac{d}{dx} \left[\frac{f(x)}{g(x)} \right] =$

2. Find the derivatives for each function below and compare your methods:

(a) $f(x) = \frac{20}{\sqrt[3]{x}}$

(b) $f(x) = \frac{20}{x^2 + 20}$

3. Find the derivatives for each function below and compare your methods:

(a) $f(x) = 20 \left(\frac{x - x^3}{x^{3/5}} \right)$

(b) $f(x) = e^x \left(\frac{x - x^3}{x^{3/5}} \right)$

4. Find the derivative of $f(x) = \frac{x^2+1}{xe^x}$

5. Assume $s(t) = 3te^t$ gives the position of an object where s is measured in feet and t is measured in seconds. Find $s'(1)$ and $s''(1)$ and interpret your answers.