

Section 4.1: Continuous Compound Interest

Compound interest formula: $A = P \left(1 + \frac{r}{m}\right)^{mt}$

Continuous compound interest formula: $A = Pe^{rt}$

Example: Invest \$3,000 at 7% compounded continuously. How much is in the account in 2 years?

Sections 4.2, 4.3, 4.4: More Derivative Rules and ApplicationsProduct Rule

$$y = f(x)g(x)$$

Example: Find the derivatives of these functions. Do not simplify.

A) $y = (x^3 + 2x + 7)(x^5 + 5x^2 + 8)$

B) $y = (x^5 + 7)(\sqrt{x} + 6)$

Quotient Rule

$$y = \frac{f(x)}{g(x)}$$

Example: Find the derivatives of these functions. Do not simplify.

$$\text{A) } y = \frac{x^2 + 3}{x^4 + 7}$$

$$\text{B) } y = \frac{7}{x^5 + 3x}$$

$$\text{C) } y = \frac{(x^2 + 5)(x^5 + 7)}{x^4 + 3}$$