

Topic 10: Exponential functions

Find the derivative of each function.

1. $f(x) = xe^x$

2. $f(x) = x + 2^x$

3. $f(x) = 2e^{x+1}$

4. $f(x) = \left(\frac{1}{3}\right)^x$

5. $f(x) = 4^{-x+1}$

Answers

1) $f'(x) = e^x + xe^x$

2) $f'(x) = 1 + (\ln 2)2^x$

3) $f'(x) = 2e^{x+1}$

4) $f'(x) = \left(\ln \frac{1}{3}\right)\left(\frac{1}{3}\right)^x$

5) $f'(x) = -(\ln 4)4^{-x+1}$