

1. Graph the following functions and state their domains and ranges.

(a) $f(x) = -3 + e^x$

(b) $f(x) = 4 \log_2(x + 3)$

2. Simplify the following:

(a) $\log_8 \sqrt{2}$

(b) $\log_4 3 + \log_4 12 - 2 \log_4 3$

3. Solve the following equations:

(a) $5^{3x-1} = 3^x$

(b) $2x^2 2^x + x 2^x = 2^x$

(c) $\log_7 x + \log_7(x - 3) = \log_7 10$