

Handout 3: The Simple Life - Answers

1. Expand and simplify
 $y = \ln(ex^2 + 3ex + 2e)$.

$$y = \ln(x + 2) + \ln(x + 1) + 1.$$

2. Simplify $y = e^{\ln x}$.

$$y = x.$$

3. Simplify $y = 9^{\log_3 2x}$.

$$y = 4x^2.$$

4. Simplify $y = \log_4(16^{5x})$.

$$y = 10x.$$

5. Expand $y = \log(4x^2z^2)$.

$$y = 2 \times (\log 2 + \log x + \log z).$$

6. Expand $y = \log \frac{3xy}{z^2}$.

$$y = \log 3 + \log x + \log y - 2 \log z.$$

7. Expand $y = \log 4x^2 - 16$.

$$2 \log(2) + \log(x + 2) + \log(x - 2).$$

8. Combine $y = \frac{1}{2}(\log 2x + 2 \log y + \log z^2)$.

$$y = \log \sqrt{2xyz}.$$

9. Combine $y = 4(\log \sqrt{x} + \log x \log z)$.

$$y = \log \frac{x^6}{z^4}.$$

10. Simplify $\ln e^2 + 6e + 9$

$$2 \ln(e + 3).$$