Solutions

Each answer shows the steps, then the **result**.

2.1

- $12 = 2^2 \times 3$, so $\log 12 = 2\log 2 + \log 3$

2.2

- $2x = \ln 7 \Rightarrow x = \frac{1}{2}\ln 7 = 0.973$

3.1 A

- $x \ln 3 = \ln 20 \Rightarrow x = \dfrac{\ln 20}{\ln 3}$

3.2

- $\ln(3(2x+1)) = \ln(4x+9)$; $6x + 3 = 4x + 9 \Rightarrow 2x = 6$; $x = 3$

3.3

(a)

- gradient $= n = 1.5$; intercept $\ln A = 2 \Rightarrow A = e^2 = 7.39$

(b)

- $y = 7.39 \times 4^{1.5} = 7.39 \times 8 = 59.1$