

1 Solve these equations giving answers to 3 sf where necessary.

a $e^x = 1.53$

b $e^x = 0.003$

c $e^x = 1$

d $e^x = \frac{1}{2}$

e $5e^x = 0.15$

2 Solve these equations giving answers to 3 sf where necessary.

a $10^x = 2.33$ **b** $10^x = 0.6$ **c** $10^x = 1$ **d** $10^x = \frac{1}{2}$

3 Find x if

a $\log x = 2$ **b** $\log x = -1$ **c** $\log x = 0$ **d** $\log x = -5.1$

4 Without using a calculator evaluate these expressions.

a $5^{\log_5 12}$

b $5^{\log_5 4}$

c $e^{\ln \sqrt{3}}$

d $e^{\ln 4}$

5 Without using a calculator evaluate these expressions.

a $\ln e^5$

b $\log 100$

c $\ln 1$

d $\ln e$

e $\ln \frac{1}{e^3}$