

Logarithmic and exponential functions

Change of base (2)

QUESTION 1 Express as a logarithm to the given base:

a $\log_4 11$ (base 2)

b $\log_{25} 6$ (base 5)

c $\log_{27} 32$ (base 3)

QUESTION 2 Find the value of x , correct to three decimal places:

a $3^x = 17$

b $2^x = 75$

c $5^x = 0.275$

d $2(6^x) = 45$

e $7^{x-1} = 16$

f $3 - 2^x = 0.37$

Page 99 1 $\log_b a$ 2 a $1\frac{1}{2}$ b $\frac{2}{3}$ c $2\frac{1}{2}$ d $2\frac{2}{3}$ e $2 \log_2 3$ 3 a 2.0959 b 1.3917 c 3.1699 d 1.7297 e 0.6275 f 2.5052
g -0.4650 h -0.4150 i -1.1495

Page 100 1 a $\frac{1}{2} \log_2 11$ b $\frac{1}{2} \log_5 6$ c $\frac{1}{3} \log_3 32$ 2 a 2.579 b 6.229 c -0.802 d 1.738 e 2.425 f 1.395