

Logarithmic and exponential functions

The number e and natural logarithms

QUESTION 1 Write down the exact value of:

- | | | | |
|---------------|-------------|-------------|---------------|
| a e^0 | b $\ln 1$ | c $\ln e$ | d $\ln e^2$ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| e $e^{\ln 2}$ | f $7 \ln e$ | g $\ln e^7$ | h $e^{\ln 5}$ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

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

- | | | | |
|----------------|--------------|----------------|-----------------|
| a e^2 | b e^4 | c $2e^5$ | d e^{-1} |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| e $\ln 1.25$ | f $\ln 7.8$ | g $\log_e 3.6$ | h $\ln 0.237$ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| i $6 \log_e 4$ | j $4e^3 + 1$ | k e | l $4 \ln 3 - 1$ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

QUESTION 3 Find the value of k , correct to three decimal places, if:

- | | | |
|-----------------|------------------|------------------------|
| a $e^k = 1.6$ | b $\ln k = 1.9$ | c $3e^k = 5.87$ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| d $7e^{2k} = 6$ | e $5e^{-4k} = 3$ | f $10e^{3k+1} = 0.456$ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |