Unit 4 Glossary Terms

logarithm

The logarithm to base 10 of a number x , written $log_{10}(x)$, is the exponent you raise 10 to get x , so it is the number y that makes the equation $10^y = x$true. Logarithms to other bases are defined the same way with 10 replaced by the base, e.g. $log_2(x)$ is the number y that makes the equation $2^y = x$true. The logarithm to the base e is called the natural logarithm, and is written $ln(x)$.

e (mathematical constant)

The number e is an irrational number with an infinite decimal expansion that starts 2.71828182845….. , which is used in finance and science as the base for an exponential function.

Natural logarithm

The natural logarithm of x , written $ln(x)$, is the log to the base e of x. So it is the number y that makes the equation $e^y = x$ true.

Logarithmic function

A logarithmic function is a constant multiple of a logarithm to some base, so it is a function given by $f(x) = klog_a(x)$ where k is any number and a is a positive number (10, 2, or e in this course). The graph of a typical logarithmic function is shown. Although the function grows very slowly, the graph does not have a horizontal asymptote.