

Elementary Math Functions

- 3.1 Find the cube root of -5 , both by using the `nthroot` function and by raising -5 to the $1/3$ power. Explain the difference in your answers. Prove that both results are indeed correct answers by cubing them and showing that they equal -5 .
- 3.2 MATLAB[®] contains functions to calculate the natural logarithm (`log`), the logarithm to the base 10 (`log10`), and the logarithm to the base 2 (`log2`). However, if you want to find a logarithm to another base—for example, base b —you'll have to do the math yourself with the formula

$$\log_b(x) = \frac{\log_e(x)}{\log_e(b)}$$

- What is the $\log_b$ of 10 when b is defined from 1 to 10 in increments of 1?
- 3.3 Populations tend to expand exponentially, that is,

$$P = P_0 e^{rt}$$

where

P = current population

P_0 = original population

r = continuous growth rate, expressed as a fraction

t = time.