4.2 The natural exponential function

A special constant: The number \( e \) is defined to be the unique number that the list gets closer and closer to.

The \( e^x \) function is the \( e^x \) function

Graph of \( y = -e^{x-5} + 1 \).

EXAMPLE Graph \( y = -e^{x-5} + 1 \). Find any asymptotes. Find the domain and range.

Continuously compounded interest: \( A(t) = Pe^rt \)

\( A(t) = Pe^rt \)

is amount after \( t \) years

is principal

is interest rate per year

is number of years

EXAMPLE If $1000 is invested at an interest of 1.25% per year, compounded continuously, find the value of the investment after the given number of years.

(a) 1 year  (b) 2 years  (c) 10 years