

Objectives

- Write and evaluate exponential expressions to model growth and decay.

Vocabulary

- exponential function
- base
- asymptote
- exponential growth
- exponential decay

Example 1

Tell whether the function shows growth or decay. Then graph

$$f(x) = 1.5^x$$



b)

Example 1b

Tell whether the function shows growth or decay. Then graph

$$g(x) = 30(0.8)^x$$



Try it!

Example 1

Tell whether the function shows growth or decay. Then graph

$$f(x) = 5(1.2)^x$$



Example 2

Tony purchased a rare 1953 Gibson Les Paul guitar in 2000 for \$12,000. Experts estimate that its value will increase by 14% per year. Use a graph to find when the value of the guitar will be \$60,000.

$$f(x) = a(1 + r)^t$$

Try it!

In 1981, the Australian humpback whale population was 350 and has increased at a rate of 14% per year. Write a function to model the population growth. Use the graph to predict when the population will reach 20,000

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