Graphing Exponential Functions

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1 Administrivia

Announcements

Assignment

Read 3.9. Online quiz.


From Last Time

Compound interest.

2 Introduction

Laws of exponents:

1. 
\[ b^{m+n} = b^m \cdot b^n \]

2. 
\[ (b^m)^n = b^{mn} \]
Graphs:

1. Exponential growth: $e^x$.
2. Exponential decay: $e^{-x}$.

Which transformation is this?

3. Graph $e^x$ against $2^x$. Important points: $x = -1, 0, 1$.

Example: Learning Curves

1. Definition: Quick initial learning, followed by slower learning as you approach the maximum (asymptote).

   Sketch a learning curve.

2. How does this compare against the exponential?

   How do we transform the exponential to yield a learning curve?

3. Example learning curve: $45 - 35e^{-0.3x}$.

   Y-intercept?

   Maximum learning value?

2.1 Class Exercise

Pg. 205: 8 a–d; 9.