

Solving Exponential Equations (Part 2)

These notes are intended as a summary of section 5.7 (p. 417 – 421) in your workbook. You should also read the section for more complete explanations and additional examples.

Solving Exponential Equations using Logarithms

We can use logarithms to solve exponential equations in which there is no common base. To do so:

1. Take the log (usually base 10) of both sides.
2. Use the laws of logarithms and algebra to isolate the variable.
3. Solve for the variable either by evaluating or by calculating.

Example 3 (sidebar p. 420)

Solve each exponential equation algebraically. Give the solution to the nearest hundredth.

a) $12 = 4^x$

b) $36 = 3(2^{x+1})$

c) $3^{x+1} = 6^x$

Example (not in workbook)

Solve each exponential equation algebraically. Give the solution to the nearest hundredth.

a) $2(3^x) = 5$

b) $5(3^x) = 4^{x-1}$

c) $19^{x-5} = 3^{x+2}$

Homework: #7, 8, 10, 12 in the section 5.7 exercises (p. 422 – 427). Answers on p. 428.