

An <u>exponential equation</u> has a variable in the exponent:

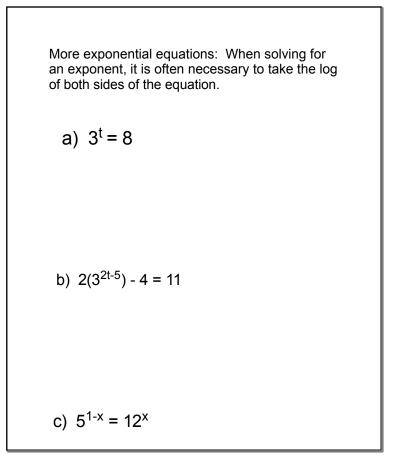
$$4^{x+1} = 16^{x-1}$$

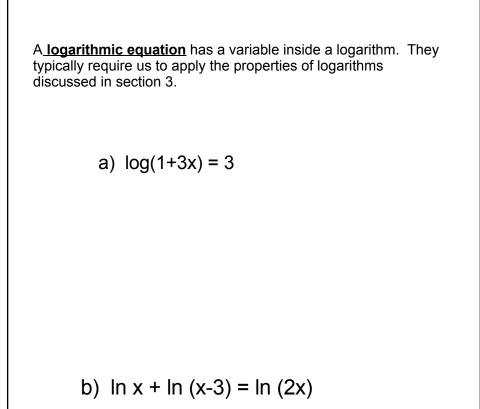
To solve this one, make the bases alike.

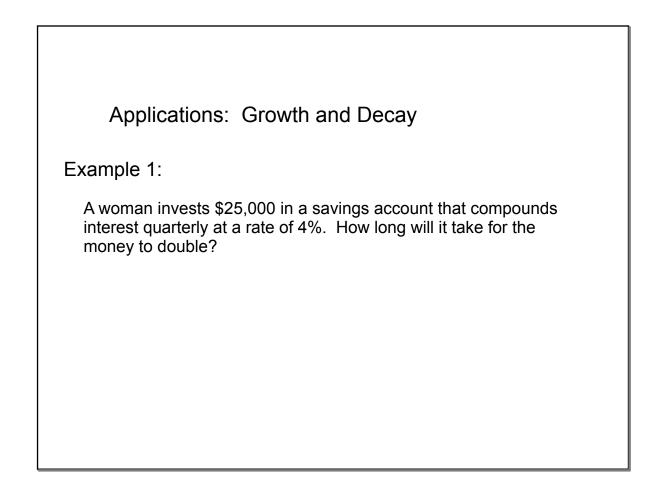
Exponential functions are one-to-one, so when the bases are the same, the exponents are equal.

Some exponential equations can be solved by factoring:

 $e^{2x} + e^{x} - 6 = 0$







Example 2:

The population of a colony of bacteria is measured to be 2000. Three hours later the population has grown to 3300. Assuming the population grows "exponentially" (compounding continuously) what should the population be after 10 hours?

Example 3:

The half-life of a certain isotope of radium is 1600 years. What percentage of a sample of the isotope will still be radioactive after 500 years?