Sec 4.2 Switching to logarithms...

A log is simply an exponent...an operation to determine $2^? = 572$ for example.

 log_2 572 = that exponent

Various bases...

We would use:

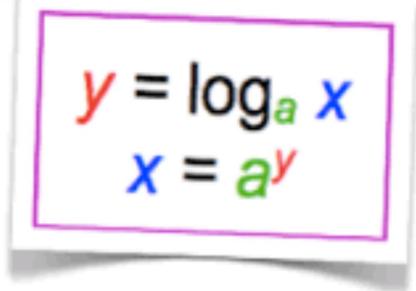
We might want to know: $2^x = 18$ $log_2 18 = x$

 $e^{x} = 82$ 1n 82 = x

 $10^{x} = 426$

 $\log 426 = x$

Today...converting from logarithmic form to exponential, using the pattern below-



Write in exponential form-

$$3 = \log_2 8 \longrightarrow 2^3 = 8$$

$$\log_5 125 = 3 \longrightarrow 5^3 = |25|$$

$$\log_b 4 = 2 \longrightarrow 5^2 = 4$$

$$\log_1 1000 = 3 \longrightarrow 5^3 = |000|$$

Write in logarithmic form-

$$4^{3} = 64 \longrightarrow \log_{4} 64 = 3$$

$$\sqrt{16} = 4$$

$$3^{-2} = 1/9 \longrightarrow |6|/2 = 4$$

$$\log_{3} |4| = -2 \longrightarrow |9| |6|$$

Evaluate without a calculator-

$$\log_{5} 25 = 2$$

$$\log_{2}^{1/2} = -1$$

$$\log_{8} 8 = \frac{3}{5}$$

$$\log_{36} 6 = \frac{1}{2}$$

$$\log_{10} 6 = \frac{1}{2}$$

Suggested Practice Section 4.2 pages 465-466

1-39 odds

3.
$$3^2 = x$$

5.
$$b^5 = 32$$

7.
$$6^{4} = 216$$

9.
$$\log_2 8 = 3$$

15.
$$\log_{13} x = 2$$

17.
$$\log_{b} 1000 = 3$$

19.
$$\log_7 200 = y$$

23. 6

¥ 31. -1/2 39.7

25. -

33. 1/2

27. -3

35. |

29, 1/2

37. O