## 7-5 Logarithmic Equations Notes

- Information/Reminders Α.
  - 1.
  - Impossible to take the log of a \_\_\_\_\_ or \_\_\_\_. When you <u>raise</u> both sides of an equation to  $\frac{?}{even \#}$  or  $\frac{even \#}{\sqrt{?}}$ , 2. include \_\_\_\_\_ in your answer.
  - Check for extraneous solutions whenever \_\_\_\_\_ both sides of 3. an equation to an power.
  - If the base is not indicated, it's \_\_\_\_\_. 4.
  - Rewrite in exponential form:  $log_b y = x \leftrightarrow$  \_\_\_\_\_\_. 5.
  - Complete the table below. 6.

Product Property	Quotient Property	Power Property
$\log_b mn =$	$\log_b \frac{m}{n} =$	$\log_b m^n =$

Unless otherwise stated, round to the nearest tenth.

Equations containing variables as the <u>base</u>. Β.  $\rightarrow$  Reverse PEMDAS

1. 
$$y^{\frac{3}{4}} - 5 = 1$$

2. 
$$\sqrt[3]{x^2} - 2 = 2$$

- C. Equations containing variables as the <u>exponent</u>.
  - $\rightarrow$  Simplify (Get base with exponent alone.)
  - → Log **Both** Sides
  - → Power Property
  - $\rightarrow$  Solve
  - 1.  $2 + 3^x = 82$

2.  $12^{x-1} - 2 = 18$  (round to 4 decimal places)

- D. Equations containing <u>logs</u> of variables.
  - → Shrink Using Properties
  - $\rightarrow$  Rewrite in Exponential Form
  - $\rightarrow$  Solve
  - 1.  $\log 6 \log(3x) = -2$

2.  $\log(x + 21) + \log x = 2$