

FROM A.12 IN ZUMDAHL.

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* LOGARITHM REVIEW.

$$1000 = 10^3$$

$$100 = 10^2$$

$$10 = 10^1$$

$$1 = 10^0$$

$$0.001 = 10^{-3}$$

$$0.01 = 10^{-2}$$

$$0.1 = 10^{-1}$$

* LOGARITHM IS AN EXPONENT

$$\begin{aligned} \log(1000) &= \log(10^3) = 3 \\ \log(100) &= \log(10^2) = 2 \\ \log(10) &= \log(10^1) = 1 \\ \log(1) &= \log(10^0) = 0 \end{aligned}$$

$$\begin{aligned} \log(0.001) &= \log(10^{-3}) = -3 \\ \log(0.01) &= \log(10^{-2}) = -2 \\ \log(0.1) &= \log(10^{-1}) = -1 \end{aligned}$$

TECHNICALLY, THESE ANSWERS ARE EXACT #S, WHICH MEANS THEY HAVE INFINITE # OF SIGNIFICANT FIGURES.

PHYSICAL CONSTANTS & THE # OF CREDITS IN PROBLEM #3 ARE ALSO EXACT #S

SO.....

$$\log(3.80 \times 10^{-6}) = \log(\underbrace{3.80}_{3 \text{ sig figs}}) + \log(10^{-6})$$

$$= 0.580 + -6.000000\bar{0}$$

FOLLOWING SIG FIG RULES
FOR ADDITION.

$$= -5.420$$

$$10^{3.201} = 10^{\overbrace{0.201}^{3 \text{ sig figs}}} \times 10^3$$

$$= 1.59 \times 1000.00000\bar{0}$$

FOLLOWING SIG FIG RULES
FOR MULTIPLICATION

$$= 1590 \text{ (OR } 1.59 \times 10^3)$$