

Problem 72

State how many significant figures are proper in the results of the following calculations: (a) $(106.7)(98.2)/(46.210)(1.01)$; (b) $(18.7)^2$; (c) $(1.60 \times 10^{-19})(3712)$

Solution

For multiplication and division, the final answer is rounded to the same number of significant figures as the least certain number.

$$\frac{(106.7)(98.2)}{(46.210)(1.01)} \approx 225$$

$$(18.7)^2 \approx 350.$$

$$(1.60 \times 10^{-19})(3712) \approx 5.94 \times 10^{-16}$$

The least certain numbers in the first calculation are 98.2 and 1.01—both have 3 significant figures. 18.7 has 3 significant figures, so that's why the answer is rounded to 3 significant figures.