

Dimensional analysis and opps with sig figs (Homework)

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1.

The length 28.3 mm can also be expressed as

2.

How many digits after the decimal point should be reported when the calculation $(10434.1 - 9.3360)$ is performed?

3.

Evaluate each of the following and write the answer to the appropriate number of significant figures.

(a) $212.5 + 22.9 + 402.17$

(b) $1.0069 + 0.259 + 0.10370$

(c) $52.317 + 26.71 - 0.9949$

(d) $2.21 \times 10^2 + 3.079 \times 10^3$

4.

Without actually performing the calculations indicated, tell to how many significant digits the answer to the calculation should be expressed.

(a) $(13.33 + 11.873 + 10.3) / (1.27)$

(b) $(0.185)(6.022 \times 10^{23})$

(c) $(2.94)(0.08202)(298)/(720.7)$

(d) $[(1.52975)(47.112)] / [(262.33)(0.2)]$

5.

Given that 1 L = 1000 mL, determine what conversion factor is appropriate to convert the following.

(a) 2.25 L to milliliters

(b) 325 mL to liters

1 L / 1000 mL

6.

The United States has high-speed trains running between Boston and New York capable of speeds of up to 160. mi/h. Are these trains faster or slower than the fastest trains in the United Kingdom, which reach speeds of 225 km/h?

Give the speed of the United Kingdom trains in miles per hour.