Problems

1.3 The Language of Physics: Physical Quantities and Units 34.

A commemorative coin that sells for $40 is advertised to be plated with 15 mg of gold. Suppose gold is worth about $1,300 per ounce. Which of the following best represents the value of the gold in the coin?

a. $0.33
b. $0.69
c. $3.30
d. $6.90

35.

If a marathon runner runs 9.50\,\text{miles} in one direction, 8.89\,\text{miles} in another direction and 2.333\,\text{miles} in a third direction, how much distance did the runner run? Be sure to report your answer using the proper number of significant figures.

a. 20
b. 20.7
c. 20.72
d. 20.732

36.

The speed limit on some interstate highways is roughly 80\,\text{km/h}. What is this in meters per second? How many miles per hour is this?

a. 62\,\text{m/s}, 27.8\,\text{mi/h}
b. 22.2\,\text{m/s}, 49.7\,\text{mi/h}
c. 62\,\text{m/s}, 2.78\,\text{mi/h}
d. 2.78\,\text{m/s}, 62\,\text{mi/h}

37.

The length and width of a rectangular room are measured to be 3.955 \pm 0.005\,\text{m} by 3.050 \pm 0.005\,\text{m}\!. Calculate the area of the room and its uncertainty in square meters.

a. 12.06 \pm 0.29\,\text{m}^2
b. 12.06 \pm 0.01\,\text{m}^2
c. 12.06 \pm 0.25\,\text{m}^2
d. 12.06 \pm 0.04\,\text{m}^2