Wednesday, September 26/12
Science 10

Announcements

1. Quiz - Tuesday (Significant Digits, Certain/Uncertain Digits, Rules, Rearranging Equations, Conversions)

2. Tumble Buggy Activity - Will complete tomorrow.

3. Text - Page 349: Understanding Concepts #6-9
   Check that these are complete for Thursday's class.

Stopped Here

4. Time

5. Speed

6. Uniform Motion

Understanding Concepts

1. A system of units is necessary to state and use measurements. What is the SI base unit name and unit symbol for each of the following quantities?
   (a) distance
   (b) time
2. Record the length of the nail in **Figure 5** in centimetres. Indicate which digits are certain and which uncertain.

Figure 5

3. Copy each of the following measured or calculated values. Place a check mark (✓) above each certain digit and a question mark (?) above each estimated or uncertain digit. Finally, state the certainty as a number of significant digits.
   (a) 7.65 mm
   (b) 20.2 m/s
   (c) 50.0 cm
   (d) 0.084 km
4. Round the following values to a certainty of three significant digits.
   (a) 32.674 km
   (b) 0.003 922 g
   (c) 107.51 s
5. In your own words, state
   (a) the rule for the number of digits allowed in the final answer obtained from a multiplication or division.
   (b) the rule for the number of decimal places allowed in the final answer obtained from addition or subtraction.
6. Complete the following calculations by providing the correctly rounded answer with units.
   (a) $22.4\text{ h} \times \frac{0.1\text{ mm}}{\text{h}} =$
   (b) $\frac{465\text{ km}}{5.21\text{ h}} =$
   (c) $18\text{ cm}^3 \times \frac{1.10\text{ g}}{\text{cm}^3} =$
   (d) $72.5\text{ min} \times \frac{1\text{ h}}{60\text{ min}} =$
   (e) 17.5 mL + 95 mL + 8.25 mL =
   (f) 32.1 m + 960 m + 20.02 m =
   (g) 0.2 cm + 23.91 cm + 0.62 cm =
   (h) 13.63 h − 0.5 h =
   (i) 35.1 mm + 67.04 mm =
   (j) 7.52 s + 8.678 s + 0.24 s =
7. Solve for the stated variable using the given definition.
   (a) $C = 2\pi r \quad r = ?$
   (b) $D = \frac{m}{V} \quad m = ? \quad V = ?$
   (c) $y = mx + b \quad x = ?$
   (d) $A = \frac{1}{2}bh \quad b = ?$
   (e) $v = \frac{d}{t} \quad d = ?$
   (f) $A = \pi r^2 \quad r = ?$
8. Determine the area of the following shapes to the correct number of significant digits.
   (a) A rectangle with a base of 100.0 m and a height of 12 m
   (b) A triangle with a base of 8.23 cm and a height of 0.68 cm
9. Convert the following quantities into the units stated. Round your answer to the correct number of significant digits.
   (a) 34 min into hours
   (b) 0.510 km into metres
   (c) 0.021 h into seconds
   (d) 25 km/h into metres per second

Making Connections

10. A soft drink salesperson claims that the company puts exactly 355 mL of pop into each can. Is this possible? What do you think is a better description of the volume?

Reflecting

11. Comment on this statement: "No measurement can ever be perfect or exact."
12. How are communication systems such as SI like a language?