

- p. 14 18. Answers vary
20. No, it only affects accuracy. Precision is determined by the fineness of divisions on scale.
22. a)  $18.1 \text{ cm} \times 19.2 \text{ cm} \times 20.3 \text{ cm} = 7.05 \times 10^3 \text{ cm}^3$  (3 sig figs)
- b) nearest tenth of a cm; nearest 10 cm
- c)  $20.3 \text{ cm} \times 12 = 243.6$  (essentially adding; go to tenths place)
- d) nearest tenth of a cm; nearest tenth of a cm
23. The average exceeds the precision possible by the clock. Not possible.

- p. 8 9. a) 26.3 cm  
b) 16 km
10. a) 2.5 g  
b) 4.33 m
11. a)  $320 \text{ cm}^2$   
b)  $13.6 \text{ km}^2$
12. a) 1.225/mL  
b)  $4.15/\text{cm}^3$
- p. 24 35. a) can't tell if the zeroes were measured, estimated, or neither  
b) write in sci not.
38. a)  $3.49 \times 10^5 \text{ g}$   
b)  $2.87 \times 10^5 \text{ J/cm}^3$

- p. 25 adding  $\rightarrow$  take the value with least amount after decimal  
multiplication  $\rightarrow$  take the value with least sig figs

p. 26 75. 
$$\begin{array}{r} 48.2 \text{ kg} \\ 51.8 \\ - 3.64 \\ \hline 48.16 \end{array} \rightarrow 48.2$$

76.  $16.40 \text{ m} \times 4.5 \text{ m} \times 3.26 \text{ m} = 2.4 \times 10^2 \text{ m}^3$

77. add them = 362.1 m

82. a) 
$$\frac{24 - 10^\circ \text{C}}{12 \text{ h}} = 1.2^\circ \text{C/h}$$

b) 
$$\begin{array}{r} 1.2^\circ \text{C} \\ \times 2 \\ \hline 2.4 \end{array} \quad \begin{array}{l} 10^\circ \text{C} - 2.4^\circ \text{C} = 7.6^\circ \text{C} \\ = 8^\circ \text{C} \end{array}$$

p. 28 87. 
$$\begin{array}{r} .0034 \text{ m} \text{ most} \\ \downarrow \\ 45.6 \text{ m} \\ \downarrow \\ 1234 \text{ m} \text{ least} \end{array}$$

94 Density of water =  $1 \text{ g/cm}^3$

$V = 1.40 \text{ m} \times .600 \text{ m} \times .340 \text{ m} = .286 \text{ m}^3$

$$\frac{.286 \text{ m}^3}{1} \times \left( \frac{100 \text{ cm}}{1 \text{ m}} \right)^3 \times \frac{1 \text{ g}}{1 \text{ cm}^3} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 286 \text{ kg}$$