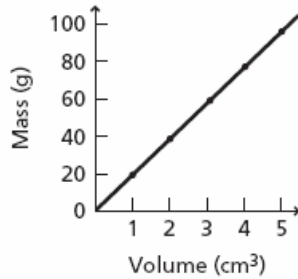


24 a.



b. a straight line

c. The relationship is linear.

d.

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{96.5 \text{ g} - 19.4 \text{ g}}{5.0 \text{ cm}^3 - 1.0 \text{ cm}^3} = 19.3 \text{ g/cm}^3$$

e. $m = (19.3 \text{ g/cm}^3)V$

f. The mass for each cubic centimeter is 19.3 g

27. 16 g

28. 7.5 A

29. The spring whose line has a smaller slope is stiffer, and therefore requires more mass to stretch it one centimeter.

43. a. Positive. As speed increases, reaction distance increases.

b. Larger. The driver who was distracted would have a longer reaction time and thus a greater reaction

44. Temperature is the independent variable; volume is the dependent variable.

57. Zero. The change in vertical distance is zero. y does not depend on x .

83. a. What is the mass of 30 cm³ of each substance?

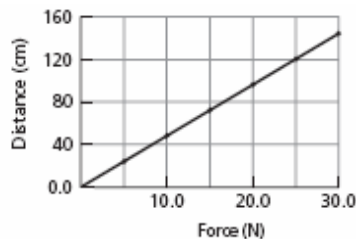
(a) 80 g, (b) 260 g, (c) 400 g

b. (a) 36 cm³, (b) 11 cm³, (c) 7 cm³

c. The slope represents the increased mass of each additional cubic centimeter of the substance.

d. The y -intercept is (0,0). It means that when $V = 0$ cm³, there is none of the substance present ($m = 0$ g).

84 a.



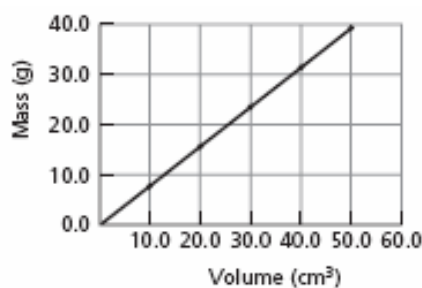
b. a straight line

c. $d = 4.9F$

d. The constant is 4.9 and has units cm/N.

e. 108 cm or 110 cm using 2 significant digits

86 a.



b. a straight line

c. $m = 0.79V$

d. g/cm³; density

e. 25.7 g