

Chapter 9 Investigation and Experimentation

Standards Practice

1 An object weighs less in water than on land. Which procedure *best* tests this hypothesis?

- A Weigh the object in water and then subtract this amount from its weight on land.
- B Calculate the density of the object by measuring its volume and mass, then compare its density to the density of water.
- C Weigh the object while it is in water and again when it is out of water.
- D Observe the volume of water the object displaces.

2 Which of the following is a hypothesis?

- A What causes ice to melt?
- B Physics is the best branch of physical science.
- C The results show that aluminum foil reduces friction.
- D Salt water boils faster than distilled water.

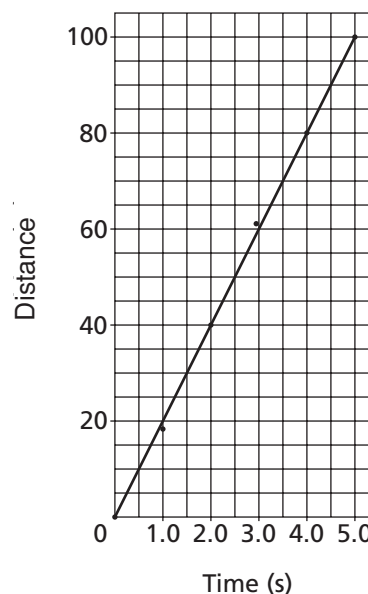
3 A student measures the volume of a 25-mL rock by measuring the amount of water it displaces. The student repeated the procedure three times with these results: 29 mL, 29mL, 29mL. These data are

- A accurate but not reproducible.
- B not accurate but reproducible.
- C both accurate and reproducible.
- D neither accurate nor reproducible.

4 A student is testing whether the angle of an inclined plane will affect how fast a toy car will roll down it. Which is the manipulated variable in the experiment?

- A the type of toy car
- B how far the toy car rolls
- C the angle of the inclined plane
- D how fast the toy car gets to the bottom of the inclined plane

5 Distance Traveled by Train



The line for this graph can be expressed as the equation $d = vt$, in which d is distance, v is velocity, and t is time. Which is equal to the slope of the line?

- A d
- B v
- C t
- D vt

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Volume (mL)	Mass (g)
20	24
40	48
60	72
80	96
100	120

These data were collected by measuring the masses of five different volumes of the same liquid. The volume of the liquid is the manipulated variable, and the mass is the responding variable. If these data were graphed, what would the slope of the line be?

- A 0.8 g/mL
- B 1.2 g/mL
- C 20 g/mL
- D 24 g/mL

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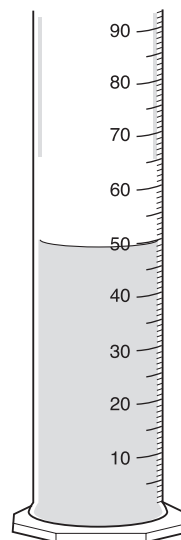
A student conducted an experiment to test how water pressure changes with underwater depth. If the resulting data were graphed, which variable would be plotted on the *y*-axis?

- A water density
- B underwater depth
- C water pressure
- D water temperature

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A circle graph should be used to analyze the data in which of the experiments below?

- A to find the percentage of hydrogen in Earth's atmosphere
- B to find out the relationship between the mass and volume of a substance
- C to compare the sizes of atoms for different elements
- D to find out how the distance a ball rolls is related to the time it rolls

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The density of this liquid is 13.6 g/mL. What is the mass of this sample of liquid?

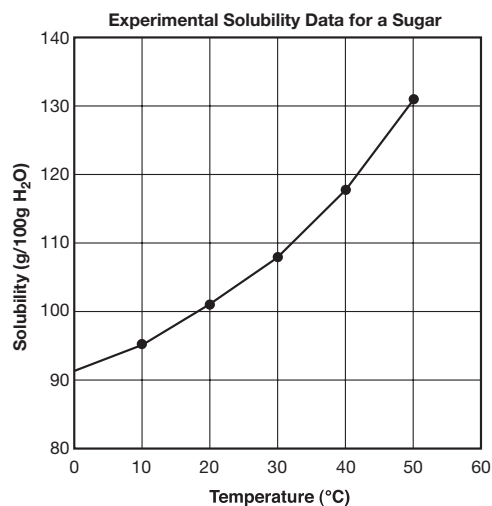
- A 0.3 g
- B 3.7 g
- C 370 g
- D 680 g

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- 10** A jogger runs at an average speed of 200 m/min. If the jogger maintains this constant speed, how long would it take the jogger to run 1600 m?

A 0.125 min
B 2 min
C 8 min
D 16 min

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This graph shows that the data in the experiment have

- A an equivalent relationship.
B a linear relationship.
C a nonlinear relationship.
D no relationship at all.

- 12** A student plotted the data points from her experiment and found that the data points have a linear relationship. The student's graph probably formed

A a straight line.
B a curved line.
C no line at all.
D a jagged line.