STANDARD VII: The student will be able to solve problems involving a variety of algebraic and geometric concepts.

OBJECTIVE

7. Solve problems involving direct variation.

ELIGIBLE CONTENT

- Diagrams may be used.
- Verbal descriptions of proportions may be used.

SAMPLE ITEMS

1 Lou would like to exchange 354 British pounds for U.S. dollars. If 1 U.S. dollar is equal to 0.59 British pounds, how many U.S. dollars will Lou receive?

A $145.14

B $208.86

C $600.00

D $863.41

2 The scale of a map is $\frac{1}{4}$ inch $= 40$ miles. If two cities are located 6 inches apart on the map, what is the actual distance between them?

A 60 miles

B 160 miles

C 240 miles

D 960 miles

3 A model airplane is built to a scale of 1:36. If the length of the model is 12 inches, what is the length of the actual airplane?

A 30 feet

B 36 feet

C 360 feet

D 432 feet

4 The speed of sound in dry air at a temperature of 0° C (32° F) is 331.6 m/sec. How far would sound travel in 3 minutes?

A 994.8 meters

B 19,896 meters

C 59,688 meters

D 71,625,600 meters

5 In an equation, y varies directly with x. If $x = 6$ when $y = 16$, what is the value of x when $y = 64$?

A $1\frac{1}{2}$

B 24

C 16

D $170\frac{2}{3}$

6 A roofer can install 100 square feet of shingles in 60 minutes. At this rate, how long will it take to install 240 square feet of shingles?

A 40 minutes

B 50 minutes

C 144 minutes

D 400 minutes

7 In an equation, x and y vary directly. If $x = 3$ when $y = \frac{-3}{2}$, which of these equations shows the relationship of x and y?

A $y = \frac{-1}{2}x$

B $y = \frac{-3}{2}x$

C $y = -2x$

D $y = 3x$

8 The ratios required for a certain orange paint mix are 1 part white to 2 parts red to 3 parts yellow. If 6 pints of red are used, how much yellow is needed?

A $1\frac{2}{3}$ pints

B $2\frac{1}{3}$ pints

C 9 pints

D 4 pints