Name

2-9A Lesson Master

Questions on SPUR Objectives
See Student Edition pages 143–147 for objectives.

SKILLS Objective A

In 1 and 2, write the statement as a variation equation.

1. T varies directly with h and inversely as the cube of n. _____

2. A varies jointly as b, c, and the fourth power of d. _____

3. The formula for the volume of a right cone is $V = \frac{1}{3}\pi r^2 h$, where r is the radius of the base and h is the height of the cone.

   a. Write a sentence translating this formula into variation language.

   _____

   _____

   b. What is the constant of variation? _____

SKILLS Objective B

4. z varies directly as the square of x and inversely as y.

   a. Write a general variation equation to represent the situation. _____

   b. If $z = 18.4$ when $x = 2.0$ and $y = 1.6$, find the constant of variation. _____

   c. Find z when $x = 3.2$ and $y = 2.4$. _____

5. P varies inversely as the square of M and directly as R and as the cube of J. When $R = 180$, $J = 2.1$, and $M = 19.4$, $P = 12.0$. Find P when $R = 144$, $J = 2.6$, and $M = 18.2$. _____

USES Objective G

6. Under certain conditions, the thrust T of a propeller varies jointly as its speed s measured in RPM and the square of its diameter d measured in feet. Suppose a propeller 4 feet in diameter generates 600 horsepower of thrust at 1000 RPM. How much thrust would a 5-foot diameter propeller generate at 800 RPM? _____

7. Recall that the weight a board can support varies directly as the width and the square of the thickness, and inversely as the distance between supports. A board with 8' between supports 1.5" thick and 5.5" wide can support 225 lb. How much weight can the board support if its width is increased to 7.5"? _____