

Name \_\_\_\_\_

**2-3B Lesson Master****Questions on SPUR Objectives**  
See Student Edition pages 143–147 for objectives.**VOCABULARY**

- Fill in the Blank** If  $y$  varies directly as  $x$ , and  $x$  is multiplied by  $c$ , then  $y$  is multiplied by \_\_\_\_\_.
- Fill in the Blank** If  $y$  varies inversely as  $x^n$  and  $x$  is multiplied by a nonzero constant  $c$ , then  $y$  is \_\_\_\_\_ by  $c^n$ .

**PROPERTIES** Objective D

In 3–6, suppose that in the given variation situations the value of  $x$  is doubled. How is the value of  $y$  changed if

- $y$  varies directly as  $x^3$ ? \_\_\_\_\_
- $y$  varies directly as  $x^4$ ? \_\_\_\_\_
- $y$  varies inversely as  $x^2$ ? \_\_\_\_\_
- $y$  varies inversely as  $\sqrt{x}$ ? \_\_\_\_\_

In 7–10, suppose that in the given variation situations the value of  $x$  is tripled. How is the value of  $y$  changed if

- $y$  varies directly as  $x$ ? \_\_\_\_\_
- $y$  varies inversely as  $x$ ? \_\_\_\_\_
- $y$  varies directly as  $x^2$ ? \_\_\_\_\_
- $y$  varies inversely as  $x^3$ ? \_\_\_\_\_

In 11–16, suppose that  $a$  varies directly as the fourth power of  $b$ . How does the value of  $a$  change if

- $b$  is doubled? \_\_\_\_\_
- $b$  is quadrupled? \_\_\_\_\_
- $b$  is multiplied by 5? \_\_\_\_\_
- $b$  is multiplied by 6? \_\_\_\_\_

Name \_\_\_\_\_

**2-3B**

page 2

15.  $b$  is multiplied by  $\frac{1}{4}$ ? \_\_\_\_\_16.  $b$  is divided by 3? \_\_\_\_\_In 17–20, suppose that  $p$  varies inversely as the fifth power of  $n$ . How does the value of  $p$  change if17.  $n$  is doubled? \_\_\_\_\_18.  $n$  is quadrupled? \_\_\_\_\_19.  $n$  is multiplied by 6? \_\_\_\_\_20.  $n$  is multiplied by  $\frac{1}{3}$ ? \_\_\_\_\_

In 21–23, use the fact that the volume of a cube varies directly as the cube of its length, width, or height.

21. A small cube-shaped planter has a length that is  $\frac{1}{5}$  as long as the length of a large one. How does the amount of dirt each planter can hold compare?  
\_\_\_\_\_22. A large cube-shaped tank has a width that is 2.5 times as great as the width of a smaller one. How does the amount of water each tank can hold compare?  
\_\_\_\_\_23. The dimensions of a cube-shaped recycling bin are each doubled. How do the volumes of the original bin and new bin compare?  
\_\_\_\_\_In 24–26, tell what effect multiplying the  $x$  values by  $\frac{1}{3}$  has on the  $y$  values.24.  $y = 5x$  \_\_\_\_\_25.  $y = 4x^2$  \_\_\_\_\_26.  $y = \frac{8}{x}$  \_\_\_\_\_27. If  $w = kz^n$ , and  $z$  is multiplied by a constant  $c$ , what happens to  $w$  \_\_\_\_\_28. If  $w = \frac{k}{z^n}$ , and  $z$  is multiplied by a constant  $c$ , what happens to  $w$ ? \_\_\_\_\_