PROBLEM SET 2-3 AND 9-1
(Direct and Inverse Variation)

Each pair of values is from a direct variation. Find the missing value.

1. $(2, 5), (4, y)$ **2.** $(4, 6), (x, 3)$ **3.** $(9, 5), (x, 3)$

Assume y varies directly as x.

4. If $y = 7$ when $x = 3$, find x when $y = 21$.

5. If $y = 30$ when $x = -3$, find y when $x = -9$

6. If $y = 0.9$ when $x = 4.8$, find y when $x = 6.4$.

7. If x is doubled, what happens to y?

8. If x is halved, what happens to y?

9. If x is multiplied by 10, what happens to y?

Each pair of values is from an inverse variation. Find the missing value.

10. $(2, 5), (4, y)$ **11.** $(4, 6), (x, 3)$ **12.** $(9, 5), (x, 3)$

13. Suppose that y varies inversely with the square of x and $y = 50$ when $x = 4$. Find y when $x = 5$.

14. Suppose that c varies jointly with d and the square of g and $c = 30$ when $d = 15$ and $g = 2$. Find d when $c = 6$ and $g = 8$.

15. Suppose that d varies jointly with r and t and $d = 110$ when $r = 55$ and $t = 2$. Find r when $d = 40$ and $t = 3$.

16. Suppose that y varies directly with x and inversely with z^2 and $x = 48$ when $y = 8$ and $z = 3$. Find x when $y = 12$ and $z = 2$.

17. Suppose that t varies directly with s and inversely with the square of r. How is the value of t changed when the value of s is doubled? Is tripled?

18. Suppose that x varies directly with the square of y and inversely with z. How is the value of x changed if the value of y is halved? Is quartered?