NAME _____ DATE _____ PERIOD _____

Reteach

Construct Functions

The *initial value of a function* is the corresponding *y*-value when *x* equals 0. You can find the initial value of a function from graphs, words, and tables.

Example 1

A football club is hiring a painter to paint a mural on the concession stand wall. The painter charges an initial fee plus $25 an hour. After 12 hours of work, the football club owed $350. Assume the relationship is linear. Find and interpret the rate of change and initial value.

Since the painter charges $25 an hour, the rate of change is 25. To find the initial value, use slope-intercept form to find the y-intercept.

$y = mx + b$	Slope-intercept form
$y = 25x + b$	Replace m with the rate of change, 25.
$350 = 25(12) + b$	Replace y with 350 and x with 12.
$50 = b$	Solve for b.

The *y*-intercept is 50. So, the initial fee is $50.

Exercises

1. While hiking, Devon's altitude rose 10 feet for every 5 minutes. After an hour of hiking, his altitude was 295 feet. Assume the relationship is linear. Find and interpret the rate of change and initial value.

2. A frozen dessert was placed in a freezer. Each hour, the temperature dropped 13 degrees. Three hours later, the temperature was 32°F. Assume the relationship is linear. Find and interpret the rate of change and initial value.

3. Tyler charges his customers a weekly fee plus $5 every time he walks their dogs. One week, he charged a customer $25 for walking their dog 3 times. Assume the relationship is linear. Find and interpret the rate of change and initial value.

NAME _____ DATE _____ PERIOD _____

Skills Practice

Construct Functions

1. When Charlotte planted her tomato plant, it grew 3 inches in one week. After 5 weeks, the tomato plant was 23 inches tall. Assume the relationship is linear. Find and interpret the rate of change and the initial value.

2. The total cost of renting a vacation home includes a deposit and a daily rental fee of $125. A family rents vacation home for 5 days and pays $700. Assume the relationship is linear. Find and interpret the rate of change and the initial value.

3. In order to enter the state fair, there is an admission cost. Each game is $3. Steven went to the state fair, played 4 games and spent a total of $20 on admission and games. Assume the relationship is linear. Find and interpret the rate of change and the initial value.

4. After writing part of his novel, Thomas is now writin 16 ages per week. After 4 weeks, he has written 85 pages. Assume the relationship is linear. Find and interpret the rate of change and the initial value.

5. A photographer charges $20 for an 8 × 10 photo plus a sitting fee. Luann spent $55 on two 8 × 10 photographs and the sitting fee. Assume the relationship is linear. Find and interpret the rate of change and the initial value.

6. To perform car maintenance, a mechanic charges for parts and $45 an hour for labor. The total cost that Terri spent for 2 hour of car maintenance is $125. Assume the relationship is linear. Find and interpret the rate of change and the initial value.