Name _____ Class _____ Date _____

Reteaching 11-2

Arithmetic Sequences

OBJECTIVE: Finding the nth term of an arithmetic sequence

MATERIALS: None

Example

Find the 15th term of an arithmetic sequence whose first three terms are 20, 16.5, and 13.

$20 - 16.5 = 3.5$
$16.5 - 13 = 3.5$ ← **First, find the common difference. The difference between consecutive terms is 3.5. The sequence decreases. The common difference is −3.5.**

$a_n = a_1 + (n - 1)\,d$ ← **Use the explicit formula.**

$a_{15} = 20 + (15 - 1)(-3.5)$ ← **Substitute $a_1 = 20$, $n = 15$, and $d = -3.5$.**

$= 20 + (14)(-3.5)$ ← **Subtract within parentheses.**

$= 20 + -49$ ← **Multiply.**

$= -29$ ← **The 15th term is −29.**

Check the answer. Write $a_1, a_2, \ldots, a_{15}$ down the left side of your paper. Start with $a_1 = 20$. Subtract 3.5 and record 16.5 next to a_2. Continue until you find a_{15}.

Exercises

Find the 25th term of each sequence.

1. 20, 18, 16, 14, . . .

2. 0.0057, 0.0060, 0.0063, . . .

3. 4, 0, −4, −8, . . .

4. 0.2, 0.7, 1.2, 1.7, . . .

5. −10, −8.8, −7.6, −6.4, . . .

6. 22, 26, 30, 34, . . .

7. Suppose you begin to work selling ads for a newspaper. You will be paid $50.00/wk plus a minimum of $7.50 for each potential customer you contact. What is the least amount of money you earn after contacting eight businesses in 1 wk?

8. In March, Jaime starts a savings account for a mountain bike. He initially deposits $15.00. He decides to increase each deposit by $8.00. How much is his seventeenth deposit?

9. Sue is knitting a blanket for her infant niece. Each day, she knits four more rows than the day before. She knitted seven rows on Sunday. How many rows did she knit on the following Saturday?