Name_____ Date_____ Period____

5.1 MORE Equations for Arithmetic Sequences

d

You're staying at a hotel downtown. It costs $8 for a parking pass plus $90 each night you stay.

1. Complete a table for this situation:

Nights	1	2	3	4	5	6	7	8	9
Hotel Cost	98	188	278	368					

+90

2. Write an explicit equation for this sequence:

$a_n = 98 + 90(n-1)$

$a_n = 90n + 8$

3. Write a recursive equation for this sequence:

$a_1 = 98$

$a_n = a_{n-1} + 90$

4. How much will it cost if you stay at the hotel for four nights?

$ 368

5. How much will it cost of you stay two weeks? 14

$a_{14} = 90(14) + 8$

$= \$1,268$

You have a job raking leaves. You earn $12.50 in tips plus $6.50 per hour of work.

6. Complete a table for this situation:

Hours	1	2	3	4	5	6	7	8	9
Total Pay	19	$25.50	32						

7. Write a recursive equation for this sequence:

$a_1 = 19$

$a_n = a_{n-1} + 6.50$

8. Write an explicit equation for this sequence:

$a_n = 19 + 6.50(n-1)$

$= 19 + 6.50n - 6.50$

$a_n = 6.50n + 12.50$

10. How much will you earn after working 30 hours?

$ $a_{30} = 6.50(30) + 12.50$

$207.50

11. How long would you have to work in order to earn $305? hours

$305 = 6.50n + 12.50$

$292.50 = 6.50n$

45 hrs $= n$

Given the first term and the common difference, list the first five terms of the sequence. Then write the explicit equation for the sequence.

12. $f(1) = 5, d = 3.2$

13. $f(1) = -1, d = -7$

14. $f(1) = -6, d = 6$

15. $f(1) = 3, d = -10.5$

Name: $a_n = a_1 + d(n-1)$ Date:

Find the nth term for each arithmetic sequence:

1. $a_1 = -5$, $d = 4$, $n = 9$

$a_n = -5 + 4(n-1)$

$a_n = -5 + 4n - 4$

$a_n = 4n - 9$

$a_9 = 4(9) - 9 = 27$

2. $a_1 = 13$, $d = -5/2$, $n = 29$

3. $a_1 = 3$, $d = -4$, $n = 6$

4. $a_1 = -5$, $d = 1/2$, $n = 10$

Complete each statement:

5. 97 is the _____th term of -3, 1, 5, 9

6. -10 is the _____th term of 14, 12.5, 11, 9.5

Find the indicated term(s) in each arithmetic sequence:

7. a_{15} for -3, 3, 9, ...

$a_n = -3 + 6(n-1)$

$= -3 + 6n - 6$

$a_n = 6n - 9$

$a_{15} = 6(15) - 9 = 81$

8. a_{19} for 17, 12, 7, ...

9. The first term is -7 and the common difference is 3. Find the next 3 terms.

$a_1 = -7$

$d = 3$

10. The first term is 6 and the common difference is -4. Find the next 3 terms.

11. The first term is 9 and the common difference is -4. Find the next 3 terms & the 100th term.

9, 5, 1, -3

$a_1 = 9$

$d = -4$ $a_n = 9 - 4(n-1)$

$a_n = 9 - 4n + 4$

$a_n = -4n + 13$

$a_{100} = -4(100) + 13$

$= -387$

12. The first term is -6 and the common difference is 5. Find the next 3 terms & the 100th term.