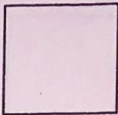


Name: _____
 Date: _____ Per: _____

Unit 3: Relations and Functions

Homework 6: Arithmetic Sequences



Key

Determine whether each sequence is an arithmetic sequence. If yes, identify the common difference.

1. 4, 7, 9, 12, ... No	2. 15, 13, 11, 9, ... $d = -2$ yes
3. 7, 10, 13, 16, ... $d = 3$ yes	4. -6, -5, -3, -1, ... No
5. -13, -6, 1, 8, ... $d = 7$ yes	6. -9, -14, -19, -24, ... $d = -14 - -9 = -5$ yes

Determine whether each sequence is an arithmetic sequence. If yes, identify the common difference.

7. 3, 7, 11, 15, <u>19</u> , <u>23</u> , <u>27</u>	8. 22, 20, 18, 16, <u>14</u> , <u>12</u> , <u>10</u>
9. -13, -11, -9, -7, <u>-5</u> , <u>-3</u> , <u>-1</u>	10. -2, -5, -8, -11, <u>-14</u> , <u>-17</u> , <u>-20</u>

Write an equation to find the n^{th} term of each sequence. Then find a_{24}

11. 1, 3, 5, 7, ... $d = 3 - 1 = 2$ $a_n = 1 + 2(n-1)$ $a_n = 1 + 2n - 2$ $a_n = 2n - 1$ $a_{24} = 2(24) - 1$ $a_{24} = 47$	12. -1, -4, -7, -10, ... $d = -4 - -1 = -3$ $a_n = -1 - 3(n-1)$ $a_n = -1 - 3n + 3$ $a_n = -3n + 2$ $a_{24} = -3(24) + 2$ $a_{24} = -70$
13. -4, -9, -14, -19, ... $d = -9 - -4 = -5$ $a_n = -4 - 5(n-1)$ $a_n = -4 - 5n + 5$ $a_n = -5n + 1$ $a_{24} = -5(24) + 1$ $a_{24} = -119$	14. 7, 13, 19, 25, ... $d = 13 - 7 = 6$ $a_n = 7 + 6(n-1)$ $a_n = 7 + 6n - 6$ $a_n = 6n + 1$ $a_{24} = 6(24) + 1$ $a_{24} = 145$

15. Charlie deposited \$115 in a savings account. Each week thereafter, he deposits \$35 into the account.

a. Write a formula to represent this sequence. $a_1 = 115$ $d = 35$ $a_n = 115 + 35(n-1)$ $a_n = 115 + 35n - 35$ $a_n = 35n + 80$	b. How much total money has Charlie deposited after 30 weeks? $a_n = 35n + 80$ $a_{30} = 35(30) + 80$ $a_{30} = 1130$
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16. As manager of the soccer team, Wendy is to hand out cups of water at practice. Each cup of water is 4 ounces. She begins practice with a 128-ounce cooler of water.

a. Write a formula to represent this sequence. $a_1 = 128$ $d = -4$ $a_n = 128 - 4(n-1)$ $a_n = 128 - 4n + 4$ $a_n = -4n + 132$	b. How much water is remaining after she hands out the 14 th cup? $a_n = -4n + 128$ $a_{14} = -4(14) + 128$ $a_{14} = 76$
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