

Name: Key
 Date: _____ Period: _____

Unit 6: Sequences
 Homework: Arithmetic Sequences

Determine whether each sequence is an arithmetic sequence. If yes, identify the common difference.	
1. 4, 7, 9, 12, ... no $7-4=3$ $9-7=2$	2. 15, 13, 11, 9, ... yes $13-15=-2$ $11-13=-2$ $9-11=-2$
3. 7, 10, 13, 16, ... yes $10-7=3$ $13-10=3$ $16-13=3$	4. -6, -5, -3, -1, ... no $-5-(-6)=1$ $-3-(-5)=2$
5. -13, -6, 1, 8, ... yes $-6-(-13)=7$ $1-(-6)=7$ $8-1=7$	6. -9, -14, -19, -24, ... yes $-14-(-9)=-5$ $-19-(-14)=-5$ $-24-(-19)=-5$
Determine whether each sequence is an arithmetic sequence. If yes, identify the next three terms.	
7. 3, 7, 11, 15, <u>19</u> , <u>23</u> , <u>27</u> $7-3=4$ $11-7=4$ $15-11=4$	8. 22, 20, 18, 16, <u>14</u> , <u>12</u> , <u>10</u> $20-22=-2$ $18-20=-2$ $16-18=-2$
9. -13, -11, -9, -7, <u>-5</u> , <u>-3</u> , <u>-1</u> $-11-(-13)=2$ $-9-(-11)=2$ $-7-(-9)=2$	10. -2, -5, -8, -11, <u>-14</u> , <u>-17</u> , <u>-20</u> $-5-(-2)=-3$ $-8-(-5)=-3$ $-11-(-8)=-3$
Write an equation to find the n^{th} term of each sequence. Then find a_{24} .	
11. 1, 3, 5, 7, ... $a_1=1, d=3-1=2$ $a_n=1+2(n-1)$ $a_n=1+2n-2$ $a_n=2n-1$ $a_{24}=2(24)-1$ $a_{24}=47$	12. -1, -4, -7, -10, ... $a_1=-1, d=-4-(-1)=-3$ $a_n=-1-3(n-1)$ $a_n=-1-3n+3$ $a_n=-3n+2$ $a_{24}=-3(24)+2$ $a_{24}=-70$
13. -4, -9, -14, -19, ... $a_1=-4, d=-9-(-4)=-5$ $a_n=-4-5(n-1)$ $a_n=-4-5n+5$ $a_n=-5n+1$ $a_{24}=-5(24)+1$ $a_{24}=-119$	14. 7, 13, 19, 25, ... $a_1=7, d=13-7=6$ $a_n=7+6(n-1)$ $a_n=7+6n-6$ $a_n=6n+1$ $a_{24}=6(24)+1$ $a_{24}=145$
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? $a_{30}=35(30)+80$ $a_{30}=\$1130$
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? $a_{14}=-4(14)+132$ $a_{14}=76 \text{ ounces}$