Name: Key

10.1 & 10.2 Practice

1) Given the simplified explicit formula for an arithmetic series is $a_n = -3n + 23$, what would the value of 'd' be?

-3

2) Find *d* of the arithmetic sequence for which $a_1 = 75$ and $a_{38} = 56.5$

$a_n = 75 + (n-1)d$

$56.5 = 75 + (38-1)d$

$56.5 = 75 + 37d$

$d = -\frac{1}{2}$

3) Using the formula from number 1, find the first term and write the explicit formula before it is simplied.

$a_1 = -3(1) + 23$

$a_1 = 20$

4) Find *n* if $a_n = 336$, $a_1 = 18$, and $d = 6$.

$a_n = a_1 + (n-1)d$

$336 = 18 + (n-1)6$

$324 = 6n$

$n = 54$

5) Given the arithmetic sequence 11, 4, –3, –10, …, write the explicit formula

$d = -7$ $t_1 = 11$

$a_n = 11 + (n-1)(-7)$

$a_n = -7n + 18$

6) Given $a_8 = 25$ and $a_{20} = 61$, find a_{53} for the arithmetic sequence.

$a_n = a_1 + (n-1)d$

$25 = a_1 + (8-1)d$

$25 = a_1 + 7d$

$61 = a_1 + (20-1)d$

$61 = a_1 + 19d$

$-25 = -a_1 - 7d$

$36 = 12d$

$d = 3$ $a_1 = 4$

$a_{53} = 160$

7) Using the same sequence from #~~8~~ 5, find the 41st term.

$a_{41} = -7(41) + 18$

$a_{41} = -269$

8) Given the sequence in #~~8~~ 6 is now a series, find the sum of the first 21st partial sum.

$S_{21} = \frac{21}{2}(4 + 64)$

$= 782$

9) Find the 101st partial sum of the arithmetic series –2.5 + 7.5 + 17.5 + …

Need term 101.

$a_{100} = -2.5 + (101-1)(10)$

$a_{101} = 997.5$

$S_{101} = \frac{101}{2}(-2.5 + 997.5)$

$50,247.5$

10) Which term of the arithmetic sequence 10, 6, 2, −2, …-146 is −146

$a_n = 10 + (n-1)(-4)$

$-146 = 10 + -4n + 4$

$n = +40$

40^{th}

11) 1)Evaluate: $\sum_{n=1}^{30} 5n + 3$ using the finite sum formula.

$2,415$

$S_{30} = \frac{30}{2}(8 + 153)$