Name: _____ **Show work needed to justify your answer.** Date: _____

HW: # 18: Math IBSL - Standard 18 - Arithmetic and Geometric Sequences 5 points

For each sequence below, use the general formula to find the term indicated.

1 $5, 13, 21, \ldots u_9$

$d = 8$

$u_9 = 8(9-1)+5$

$u_9 = 8(8)+5$

$u_9 = 69$

4 $\frac{3}{6}, \frac{5}{6}, \frac{7}{6}, \ldots u_6$

$+\frac{2}{6} = \frac{1}{3}$

$u_6 = \frac{1}{3}(6-1)+\frac{1}{2}$

$u_6 = \left(\frac{1}{3}\right)\left(\frac{5}{1}\right)+\frac{3}{6}$

$u_6 = \frac{10}{6}+\frac{3}{6} = \frac{13}{6}$

5 $x+2, x+5, x+8, \ldots u_9$

$+3$

$u_9 = 3(9-1)+x+2$

$u_9 = 24+x+2$

$u_9 = x+26$

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1 Given an arithmetic progression with $u_{21} = 65$ and $d = -2$, find the value of the first term.

$65 = -2(21-1)+u_1$

$65 = -2(20)+u_1$

$65 = -40+u_1$

$u_1 = 105$

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3 Given an arithmetic sequence in which $u_1 = 11$ and $d = -3$, find the term that has a value of 2.

$2 = -3(n-1)+11$

$2 = -3n+3+11$

$2 = -3n+14$

$-12 = -3n$

$n = 4$

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5 Find the number of terms in the finite arithmetic sequence $6, -1, -8, \ldots, -36$.

-7

$-36 = -7(n-1)+6$

$-42 = -7(n-1)$

$6 = n-1$

$7 = n$