

Name: KEY

Section 1.1 – Arithmetic Sequence and Series

Arithmetic Sequence: $t_n = a + (n - 1)d$

<p>Given the sequence:</p> <p style="text-align: center;">$3, -7, -17, \dots$</p> <p>Find the 24th Term.</p> $t_n = a + (n-1)d$ $a = 3 \quad n = 24 \quad d = -10$ $t_{24} = 3 + (24-1)(-10)$ $t_{24} = 3 + (23)(-10)$ $t_{24} = 3 + (-230) \quad \boxed{t_{24} = -227}$	<p>Given the sequence:</p> <p style="text-align: center;">$-4, 2, 8, \dots$</p> <p>What term number is the value 422</p> $t_n = a + (n-1)d$ $a = -4 \quad t_n = 422 \quad d = 6$ $422 = -4 + (n-1)(6)$ $\begin{matrix} +4 & +4 \end{matrix}$ $\frac{426}{6} = \frac{6(n-1)}{6}$ $71 = n-1 \quad \boxed{n = 72}$
<p>If the 4th term is 9 and the 13th term is 27. What is the first term?</p> $t_{13} - t_4 = 9 \text{ Terms}$ $27 - 9 = 18 \quad 9d = 18$ $d = 2$ $t_n = a + (n-1)d \quad \text{use } t_4 = 9$ $9 = a + (4-1)(2)$ $9 = a + 6$ $\boxed{a = 3}$	<p>Arithmetic Series: $S_n = \frac{n}{2}(a + l)$</p> <p>Given the Series below. What is the sum?</p> $3 + 7 + 11 + 15 + 19 + 23 + 27 + 31 + 35$ <p style="text-align: center;">$n = 9$</p> $a = 3 \quad l = 35$ $S_9 = \frac{9}{2}(3 + 35)$ $S_9 = 4.5(38)$ $\boxed{S_9 = 171}$