

Name: KEY

Section 2.3 – Sequence and Series

Solve for the missing information

$$t_n = a + (n - 1)d$$

<p style="text-align: center;">$a = -2, d = 8, \text{ find } t_{12}$</p> $t_{12} = -2 + (12-1)(8)$ $t_{12} = -2 + 11(8)$ $t_{12} = -2 + 88$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">$t_{12} = 86$</div>	<p style="text-align: center;">$a = -3, d = 5, t_n = 82$</p> $82 = -3 + (n-1)(5)$ $85 = 5(n-1)$ $17 = n-1$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">$n = 18$</div>
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Find the sum of the series. $S_n = \frac{n}{2}(a + l)$

or $S_n = \frac{n}{2}(2a + (n - 1)d)$

<p style="text-align: center;">$1 + 5 + 9 + 13 + \dots + 97$</p> <p>need n 1st $d = 4$</p> <p>$n = ?$</p> <p>$t_n = a + (n-1)d$ $a = 1$</p> $97 = 1 + (n-1)4$ $96 = 4(n-1) \rightarrow 24 = n-1$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">$n = 25$</div> <p>Have d so can use</p> $S_n = \frac{n}{2}(a+l)$ $S_{25} = \frac{25}{2}(1+97)$ $S_{25} = 12.5(98) = $ <div style="border: 1px solid black; padding: 2px; display: inline-block;">1225</div>	<p style="text-align: center;">$S_{21}, \text{ if } a_1 = 8, a_{20} = 65$</p> <p>$a_{20} - a_1 = 19$ terms $n = 21$</p> <p>$65 - 8 = 57$ $a = 8$</p> <p>$d = ?$</p> $19d = 57$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">$d = 3$</div> $S_{21} = \frac{21}{2}(2(8) + (21-1)(3))$ $S_{21} = 10.5(16 + 60)$ $S_{21} = 10.5(76)$ <div style="border: 1px solid black; padding: 2px; display: inline-block;">$S_{21} = 798$</div>
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