Bellwork Alg 2 Thursday, August 29, 2019

Find the 75th term for each sequence.

1. $7, 14, 28, 56, 112, \ldots$

2. $23, 15, 7, -1, -9, \ldots$

3. $1, 4, 9, 16, 25, \ldots$

4. A sequence is created by adding the same number every time. Find t_3 if $t_2 = 9$ and $t_4 = 17$.

5. A sequence is created by multiplying by the same number every time. Find t_3 if $t_2 = 12$ and $t_4 = 192$.

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ANSWERS

Find the 75th term for each sequence.

1. $7, 14, 28, 56, 112, \ldots$

×2 ×2 ×2 ×2

Geometric Sequence

$t_n = 7(2)^{n-1}$

$t_{75} = 7(2)^{75-1}$

$= 7(2)^{74}$

$t_{75} = 1.322262615 \times 10^{23}$

2. $23, 15, 7, -1, -9, \ldots$

−8 −8 −8 −8

Arithmetic Sequence

$t_n = 23 - 8(n-1)$

$t_{75} = 23 - 8(75-1)$

$t_{75} = 23 - 8(74)$

$t_{75} = -569$

3. $1, 4, 9, 16, 25, \ldots$

$(1)^2, (2)^2, (3)^2, (4)^2, (5)^2$

$t_n = n^2$

$t_{75} = (75)^2$

$t_{75} = 5625$

4. A sequence is created by adding the same number every time. Find t_3 if $t_2 = 9$ and $t_4 = 17$.

9 (t_2), $?$ (t_3), 17 (t_4)

+x +x

$t_3 = 9 + x$

$= 9 + 4$

$t_3 = 13$

$t_4 = 9 + x + x = 17$

$9 + 2x = 17$

$-9 \quad -9$

$2x = 8 \rightarrow x = 4$

5. A sequence is created by multiplying by the same number every time. Find t_3 if $t_2 = 12$ and $t_4 = 192$.

12 (t_2), $?$ (t_3), 192 (t_4)

·x ·x

$t_4 = 12 \cdot x \cdot x = 192$

$\frac{12x^2}{12} = \frac{192}{12}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

$t_3 = 12 \cdot x$

$= 12(4) = 48$

or

$= 12(-4) = -48$