Bellwork Alg 2B Thursday, December 21, 2017

1. Write the explicit formula for this sequence: $22.4,\ 28.8,\ 35.2,\ 41.6,\ \ldots$

2. Use this information about an Arithmetic Sequence to find the 50th term of the sequence.

$a_5 = -35$ $a_{11} = -11$ $a_{50} =$

3. Use this information about an Arithmetic Sequence to find the number of terms in the sequence.

$a_8 = 43$ $a_{17} = 70$ the last term is 124

4. Find the missing terms in each Geometric Sequence.

a) $13, \_\_\_\_, 832$ b) $-8, \_\_\_\_, \_\_\_\_, \_\_\_\_, -117128$ c) $4, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 31104$

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Bellwork Answers

Alg 2B Thur 12-21-17

(1) 22.4, 28.8, 35.2, 41.6, ... Arithmetic $d = 6.4$

$$a_n = 22.4 + 6.4(n-1)$$

(2) $a_5 = -35$ $a_{11} = -11$

$-11 - -35 = 24$

a_5 to a_{11} → 6 jumps

$$d = \frac{24}{6} = 4$$

$$a_1 = a_5 - 4(4) = -35 - 16 = -51$$

→ explicit formula

$$a_n = -51 + 4(n-1)$$

$$a_{50} = -51 + 4(50-1)$$

$$a_{50} = 145$$

(3) $a_8 = 43$ $a_{17} = 70$

$70 - 43 = 27$

a_8 to a_{17} = 9 jumps

$$d = \frac{27}{9} = 3$$

$$a_1 = a_8 - 7(3) = 43 - 21 = 22$$

→ explicit Formula

$$a_n = 22 + 3(n-1)$$

↓ Replace a_n with last term and solve for n.

$$124 = 22 + 3(n-1)$$

$$124 = 22 + 3n - 3$$

$$124 = 3n + 19$$

$$-19 \qquad -19$$

$$\frac{105}{3} = \frac{3n}{3}$$

$n = 35$ = # Terms

(4) a) $13, \frac{}{x}, 832$

$\frac{x}{13} = \frac{832}{x}$ $\quad \sqrt{x^2} = \sqrt{10816}$

$x = \pm 104$

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b)

(1st) $\frac{x}{-8} = \frac{-117128}{x}$ $\quad x^2 = 937024$ $\quad x = \pm 968$ only neg is possible.

$-8, \frac{\pm 88}{y}, \frac{-968}{x}, \frac{\pm 10648}{z}, -117128$

$\frac{y}{-8} = \frac{-968}{y}$ $\quad y^2 = 7744$ $\quad y = \pm 88$ both are possible

$\frac{z}{-968} = \frac{-117128}{z}$ $\quad z^2 = 113379904$ $\quad z = \pm 10648$ Both are possible

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c) $4, \frac{}{}, \frac{}{}, \frac{}{}, \frac{}{}, 31104$

$4 \cdot r \cdot r \cdot r \cdot r \cdot r = 31104$

$\frac{4r^5}{4} = \frac{31104}{4}$

$r^5 = 7776$

$r = \sqrt[5]{7776} = 6$ only +6 because there is only one odd root of a number

$4, \underset{\times 6}{24}, \underset{\times 6}{144}, \underset{\times 6}{864}, \underset{\times 6}{5184}, 31104$