Bellwork Alg 2B Thursday, January 18, 2018

1. Find the sum of the terms in this series: $-56, -62, -68, -74, \ldots, -248$

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2. Use the given information to find the sum of this arithmetic series.

$a_7 = 17$ $a_{11} = 49$ Last Term: $a_n = 241$

3. Use the given information to find the number of terms in the arithmetic series.

$a_1 = 34$ Last term: $a_n = 184$ $S_n = 5559$

4. Use the given information to find the common difference of this arithmetic series.

$a_1 = 33$ Last term: $a_n = 257$ $S_n = 2465$

Answers

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1. Find the sum of the terms in this series: $-56, -62, -68, -74, \ldots, -248$

$S_n = \frac{n}{2}(a_1 + a_n)$ $\quad a_1 = -56$ $\quad a_n = -248$

Find # terms, n:

$a_n = -56 - 6(n-1)$

$-248 = -56 - 6(n-1)$

$-192 = -6(n-1)$

$32 = n-1$

$n = 33$

$S_{33} = \frac{33}{2}(-56 + -248)$

$S_{33} = -5016$

2. Use the given information to find the sum of this arithmetic series.

$a_7 = 17$ $\quad a_{11} = 49$ $\quad$ Last Term: $a_n = 241$

$S_n = \frac{n}{2}(a_1 + a_n)$ $\quad a_n = 241$

① find d: $d = \frac{49-17}{11-7} = \frac{32}{4} = 8$

② find a_1: $a_1 = a_7 - 6(8) = -31$

③ find # terms, n: $a_n = -31 + 8(n-1)$

$241 = -31 + 8(n-1)$

$n = 35$

$S_{35} = \frac{35}{2}(-31 + 241)$

$S_{35} = 3675$

3. Use the given information to find the number of terms in the arithmetic series.

$a_1 = 34$ $\quad$ Last term: $a_n = 184$ $\quad S_n = 5559$

$S_n = \frac{n}{2}(a_1 + a_n)$

$5559 = \frac{n}{2}(34 + 184)$

$5559 = \frac{n}{2}(218)$

$25.5 = \frac{n}{2}$

$n = 51$

4. Use the given information to find the common difference of this arithmetic series.

$a_1 = 33$ $\quad$ Last term: $a_n = 257$ $\quad S_n = 2465$

$S_n = \frac{n}{2}(a_1 + a_n)$

$2465 = \frac{n}{2}(33 + 257)$

$2465 = \frac{n}{2}(290)$

$8.5 = \frac{n}{2}$

$n = 17$

USE THE EXPLICIT FORMULA

$a_n = a_1 + d(n-1)$

$257 = 33 + d(17-1)$

$257 = 33 + d(16)$

$224 = d(16)$

$14 = d$