

33 $a_3=19$ $a_{15}=-1.7$

$$a_{15} = a_3 + 12d$$

$$-1.7 = 19 + 12d$$

$$-20.7 = 12d$$

$$-1.725 = d$$

$$19 = a_1 + (3-1)(-1.725)$$

$$19 = a_1 - 3.45$$

$$22.45 = a_1$$

$$a_n = 22.45 + (n-1)(-1.725)$$

$$a_n = 22.45 - 1.725n + 1.725$$

$$a_n = 24.175 - 1.725n$$


Apr 30-10:23 AM

Arithmetic Series

Q: What's a series?
 A: *Sum of a sequence*

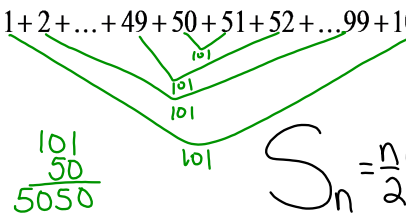
Two ways to notate a series:

$$\sum$$

$$S_n$$


Apr 17-10:42 AM

$1 + 2 + \dots + 49 + 50 + 51 + 52 + \dots + 99 + 100$



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

p. 599, #57 (HW)

Apr 17-10:46 AM

Example
 Find the sum of the first 65 terms of the arithmetic series

$a_n = a_1 + (n-1)d$ $33 + 39 + 45 + 51 + \dots$

$$a_{65} = 33 + (65-1)(6)$$

$$= 33 + 384$$

$$= 417$$

$$S_{65} = \frac{65(33+417)}{2}$$

$$= \frac{65(450)}{2}$$

$$= 14,625$$

p. 599, #63 (HW)

Apr 17-10:47 AM

ExampleFind the sum of the arithmetic series $\sum_{i=1}^{10} (6i - 4)$

$$S_{10} = \frac{10(2+56)}{2}$$

$$= \frac{10(58)}{2}$$

$$= 290$$

$$6(1) - 4 = 2$$

$$6(10) - 4 = 56$$

p. 599, #73 (HW)

Apr 17-10:49 AM

Example

How many poles will be in a stack of telephone poles if there are 50 in the first layer, 49 in the second, and so on, with 6 in the top layer?

$$50, 49, \dots, 6$$

$$S = \frac{45(50+6)}{2}$$

$$= \frac{45(56)}{2}$$

$$= 1,260$$

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

$$6 = 50 + (n-1)(-1)$$

$$6 = 50 - 1n + 1$$

$$6 = -1n + 51$$

$$\begin{array}{r} -51 \\ -51 \end{array}$$

$$\hline -45 = -1n$$

$$45 = n$$

Apr 17-10:50 AM

HOMEWORK

...arithmetic=add.

8.2b (p. 598): 35-41 (odd), 57-73 (odd), 81, 83

Mar 31-6:02 PM

Apr 24-11:20 AM