7.5 Arithmetic Series

$$3 + 7 + 11 + 15 + 19 + 23 + 27$$

7.5 Arithmetic Series

$$3 + 7 + 11 + 15 + 19 + 23 + 27$$

$$27 + 23 + 19 + 15 + 11 + 7 + 3$$

7.5 Arithmetic Series

t_1 3 + 7 + 11 + 15 + 19 + 23 + 27

t_n 27 + 23 + 19 + 15 + 11 + 7 + 3

30 + 30 + 30 + 30 + 30 + 30 + 30

$$\frac{7(30)}{2} = \frac{210}{2} = 105$$

The two formulas:

$$S_n = \frac{n(t_1 + t_n)}{2}$$

do not need

$$\underline{d}$$

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

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

need d

Two examples:

Find S_{22} of the sequence $32, 25, 18 \ldots$

-7 -7

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

$$S_{22} = \frac{22(2(32) + (22-1)(-7))}{2}$$

$$S_{22} = -913$$

Find the sum of arithmetic sequence:

$8 + 11 + 14 + \cdots + 2129$

a

$+3$

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

$2129 = 8 + (n-1)(3)$

$2121 = (n-1)(3)$

$707 = n - 1$

$708 = n$

$S_n = \frac{n(t_1 + t_n)}{2}$

$S_{708} = \frac{708(8 + 2129)}{2}$

$S_{708} = 756498$