

b) Write a general term t_n for
1, 5, 9, 13, ...
What is term t_{25} ?

C) A visual and performing arts group wants to hire a community events leader. The person will be paid \$12 for the first hour of work, \$19 for two hours of work, \$26 for three hours of work, and so on.

i) Write the general term that you could use to determine the pay for any number of hours worked.

ii) What will the person get paid for 6 h of work?

D) What is the charge for 10 h if the furnace technician charges \$45 for the house call plus \$46 per hour?

Topic 3 Finding Number of Terms

To find the number of terms n you will need the common difference d , the first term t_1 , and the t_n . The general term of an arithmetic sequence is given by the following formula:

$$t_n = t_1 + (n - 1)d$$

- ☛ write the general term formula
- ☛ substitute t_1 , t_n and d
- ☛ simplify to find desired value

Example 3

- a) For 1, 5, 9, 13, ...which term is 153?

Topic 4 Finding The Arithmetic Mean

The arithmetic mean is the point(s) between 2 numbers that would form a arithmetic sequence of all 3 numbers (they would have a common difference).

To find the arithmetic mean you will need the number of terms n , the first term t_1 , and the t_n . The general term of an arithmetic sequence is given by the following formula:

$$t_n = t_1 + (n - 1)d$$

- ☞ write the general term formula
- ☞ substitute t_1 , t_n and n
- ☞ simplify to find d
- ☞ use d to find mean

Example 4

a) What are the 2 arithmetic means between 2 and 17?

$$2, \square, \square, 17$$

b) In an arithmetic sequence, $t_3 = 24$ and $t_8 = 59$. Find the first two terms.

$\square, \square, 24, \square, \square, \square, \square, 59$

Topic 5**General Formula for Sum of an
Arithmetic Series**

$$S_n = \frac{n}{2}[2t_1 + (n-1)d]$$

$$S_n = \frac{n}{2}[t_1 + t_n] \quad * \text{ use if } t \text{ is known}$$

Example 1

- a) Find the sum of the 1st 9 (t)
terms of $2+5+8+\dots$

Topic 6**Finding Arithmetic Sum**(given t_1, t_n, n)

$$S_n = \frac{n}{2} [t_1 + t_n]$$

- ➡ substitute t_1, t_n, n into formula
- ➡ simplify to find desired value

Example 1

Find the sum of $2 + 6 + 10 + \dots + 202$

Example 2

b) Find the sum of the series:

$$3+6+9+12+15+18+21+24+27+30+33$$

H.M.P.

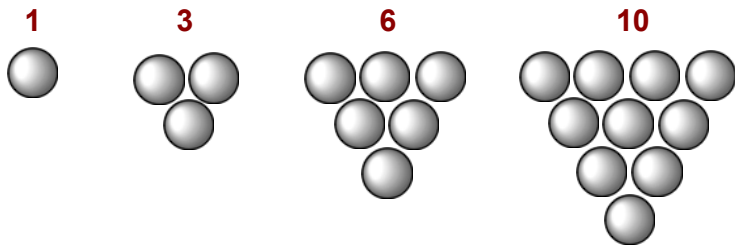
1. The first three terms of the an arithmetic sequence are given by x , $(3x - 8)$, 11.5

a) Determine the first term and the common difference.

b) Determine the 18th term.

c) Determine the sum of the first 18 terms.

3. Given the diagram:



a) Find the 10th triangular number.
