

Harder Sum of an Arithmetic Series

(a) An arithmetic series has a first term of 5 and a common difference of 3. Find the sum of the series from the 11th term to the 30th term inclusive.

(b) The first five terms of an arithmetic series are:

$$10, 12.5, 15, 17.5, 20$$

Find the sum of this series from the 21st term to the 50th term inclusive.

(c) The fourth term of an arithmetic series is 27. The tenth term of the same series is 15. Find the sum of the first 25 terms of the series.

(d) The 8th term of an arithmetic series is 39. The sum of the first 20 terms of the series is 1030. Find the 18th term of the series.

(e) The sum of the first ten terms of an arithmetic series is 92.5. The sum of the first 30 terms of the same series is 427.5. Find the first three terms of the series.

(f) The 17th term of an arithmetic series is three times the 6th term of the same series. The sum of the first 10 terms of the series is 200. Find the sum of the first 20 terms of the series.

(g) The sum of the first 25 terms of an arithmetic series is 10 times the sum of the first 16 terms of the same series. If the third term of the series is -14 , find the fifth term of the series.

(h) The first four terms of an arithmetic series are:

$$2k + 1, 3k - 1, 4k - 3, 5k - 5$$

Given that the 10th term of the series is $k^2 + 7$, find the two possible values of k and hence the two possible sums of the first 20 terms of the series.

$$(a) 1270$$

$$(b) 2887.5$$

$$(c) a = 33, d = -2, \\ S_{25} = 225$$

$$(d) a = 4, d = 5, \\ u_{18} = 89$$

$$(e) a = 7, d = 0.5 \\ \text{FIRST 3 TERMS } 7, 7.5, 8$$

$$(f) a = 2, d = 4 \\ S_{20} = 800$$

$$(g) a = -20, d = 3 \\ u_5 = -8$$

$$(h) k = 8, a = 17, d = 6 \\ S_{20} = 1480$$

$$\text{OR } k = 3, a = 7, d = 1 \\ S_{20} = 330$$