



SPM Practice 1 (Arithmetic Progression)

1. The third and eighth terms of an arithmetic progression are -5 and 15 respectively. Find
(a) The first term and the common difference
(b) The sum of the first 10 terms.
[Ans : (a) $a=-13, d=4$ (b) 50]
2. The first three terms of an arithmetic progression are $2k, 3k+3, 5k+1$. Find
(a) the value of k ,
(b) the sum of the first 15 terms of the progression.
[Ans : (a) $k=5$ (b) 990]
3. Given an arithmetic progression $p+9, 2p+10, 7p-1, \dots$, where p is a constant. Find
(a) value of p ,
(b) the sum of the next five terms.
[Ans : (a) $p=3$ (b) 160]
4. It is given that $-7, h, k, 20, \dots$ are the first four terms of an arithmetic progression. Find the value of h and of k .
[Ans : $h=2, k=11$]

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5. 51, 58, 65,.....191 are the first n terms of an arithmetic progression. Find the value of n .

[$n=21$]

7. Find the sum of all the multiples of 7 between 100 and 500.

[Ans : 17157]

6. Find the number of the multiples of 8 between 100 and 300.

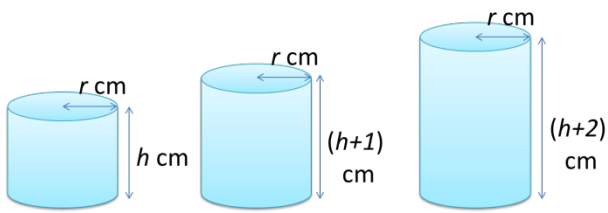
[Ans : 25]

8. If $\log_{10} p$, $\log_{10} pq$ and $\log_{10} pq^2$ are the first three terms of a progression, show that it forms an arithmetic progression.

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9.



Show that the volumes of the cylinders in the above diagram form an arithmetic progression and state its common difference.

[Ans: $d = \pi r^2$]

10. The sequence $-11, -5, 1, \dots$ is an arithmetic progression. State the three consecutive terms of this arithmetic progression where the sum of these three terms is 93.

[Ans : 25, 31, 37]

11. An arithmetic progression consists of 10 terms. The sum of the last 5 terms is 5 and the fourth term is 9. Find the sum of this progression.

[Ans : 60]



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12. The sum of the first 6 terms of an arithmetic progression is 39 and the sum of the next 6 terms is -69. Find

- (a) The first term and the common difference.
- (b) The sum of all the terms from the 15th term to the 25th term.

[Ans : (a) $a=14$, $d=-3$ (b) -473]

13. An arithmetic progression has 9 terms. The sum of the first four terms is 24 and the sum of all the odd number terms is 55. Find

- (a) The first term and common difference,
- (b) The seventh term.

[Ans : (a) $a=3$, $d=2$ (b) 15]



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14. An arithmetic series, with the first term 12 and common difference d , consists of 23 terms. Given that the sum of the last 3 terms is 5 times the sum of the first 3 terms, find

- (a) the value of d ,
- (b) the sum of the first 19 terms.

[Ans : (a) $d=3$, (b) 741]

15. The sum of n terms of an arithmetic progression

is given by the formula $S_n = \frac{n}{2}(5 - 3n)$. Find

- (a) the first term,
- (b) the common difference,
- (c) the tenth term.

[Ans : (a) $a=1$, (b) $d=-3$, (c) -26]