

## Answer to Question #87788 – Math – Algebra

### Question

The sum of three numbers in A.P. is 27 and their product is 288, find the numbers.

### Solution

Let the three numbers in A.P. be  $(a - d)$ ,  $a$ ,  $(a + d)$ , where  $d$  the common difference.

As per the question we get,

$$(a - d) + a + (a + d) = 27$$

$$a - d + a + a + d = 27$$

$$3a = 27$$

$$a = \frac{27}{3}$$

$$a = 9$$

Moreover we get,

$$(a - d) \cdot a \cdot (a + d) = 288$$

$$(9 - d) \cdot 9 \cdot (9 + d) = 288$$

$$(9 - d)(9 + d) = \frac{288}{9}$$

$$81 - d^2 = 32$$

$$d^2 = 81 - 32$$

$$d^2 = 49$$

$$d = \pm 7$$

When  $d = 7, a = 9$ ; we have the three numbers in A.P. are  $(9 - 7), 9, (9 + 7)$   
i.e., 2, 9 and 16.

When  $d = -7, a = 9$ ; we have the three numbers in A.P. are  $(9 + 7), 9, (9 - 7)$   
i.e., 16, 9 and 2, which are same as above.

Therefore, the three numbers are 2, 9 and 16.

**Answer:** 2, 9, 16.