

## Exercise 11B

```
Question 1:
If T_1, T_2, T_3 are consecutive terms of an AP, then
T_2 - T_1 = T_3 - T_2 or 2T_2 = T_1 + T_3
\therefore x+2, 2x, 2x + 3 are in AP, if
2(2x) = x + 2 + 2x + 3
\Rightarrow 4x = 3x + 5 \Rightarrow x = 5
Ouestion 2:
Let the required numbers be (a - d), a and (a + d)
Sum of these numbers = (a - d) + a + (a + d) = 3a
Product of these numbers = (a - d) \times a \times (a + d) = a(a^2 - d^2)
But sum = 15 and product = 80
\therefore 3a = 15 \Rightarrow a = 5
and a(a^2 - d^2) = 5 \times (25 - d^2) = 80 \cdot a = 5
\Rightarrow (25 - d^2) = 16
\Rightarrow d<sup>2</sup> = 25 - 16 \Rightarrow d<sup>2</sup> = 9
Thus, a = 5 and d = 3
Hence, the required numbers are (2, 5, 8)
Question 3:
Let the required number be (a - d), a and (a + d)
Sum of these numbers = (a - d) + a + (a + d) = 3a
Product of these numbers = (a - d) \times a \times (a - d) = a(a^2 - d^2)
But sum = 27 and product = 405
\therefore 3a = 27 \Rightarrow a = 9
and a(a^2 - d^2) = 405
\Rightarrow 9 x (81 - d<sup>2</sup>) = 405 [:: a = 5]
\Rightarrow 729 - 9d<sup>2</sup> = 405
\Rightarrow 9d<sup>2</sup> = 729 - 405 = 324
\Rightarrow d<sup>2</sup> = 36
d = \pm 6
a = 9 and d = 6
Hence the required numbers are (3, 9, 15)
Question 4:
Let the required numbers be (a - d), a, (a + d)
Sum of these number = (a - d) + a + (a + d) = 3a
Product of these numbers = (a - d) \times a \times (a + d) = a(a^2 - d^2)
\therefore 3a = 3 \Rightarrow a = 1
and a(a^2 - d^2) = 1(1 - d^2) = -35
\Rightarrow 1 - d^2 = -35
\Rightarrow d<sup>2</sup> = 36
\Rightarrow d = 6
But, sum = 3 and product = -35
Thus, a = 1 and d = 6
Hence, the required numbers are (-5, 1, 7)
```

\*\*\*\*\*\* END \*\*\*\*\*\*