

PROGRESSION - SOLVED EXAMPLES

Advertisements

Q 1 - Locate the ninth term and sixteenth term of the A.P. 5,8,11, 14, 17...

A - 40

B - 50

C - 60

D - 70

Answer - B

Explanation

In the given A.P. we have $a=5$, $d= (8-5) = 3$
 $\therefore T_n = a + (n-1) d = 5 + (n-1) 3 = 3n+2$
 $T_{16} = (3 \cdot 16 + 2) = 50$

Q 2 - Which term of the A.P. 4,9,14, 19 ... is 109?

A - 22nd

B - 23rd

C - 24th

D - 25th

Answer - A

Explanation

We have $a = 4$ and $d = (9-4) = 5$
Let the n th term 109. At that point
 $(a + (n-1) d) = 109 \Rightarrow 4 + (n-1) \cdot 5 = 109$
 $(n-1) \cdot 5 = 105 \Rightarrow (n-1) = 21 \Rightarrow n = 22$
 \therefore 22nd term is 109.

Q 3 - What numbers of term arrive in the A.P. 7, 13, 19, 25... 205?

A - 34

B - 35

C - 36

D - 37

Answer - A

Explanation

Let the given A.P contain n terms. At that point,
 $A=7$, $d = (13-7) = 6$ and $T_n = 205$
 $\therefore a + (n-1) d = 205 \Rightarrow 7 + (n-1) \cdot 6 = 198 \Rightarrow (n-1) = 33 \Rightarrow n = 34$

Given A.P contains 34 terms.

Q 4 - The sixth term of an A.P. is 12 and its eighth term is 22. Locate its first term, normal contrast and sixteenth term.

A - 61

B - 62

C - 63

D - 64

Answer - B

Explanation

Let, first term = a and normal contrast = d.
 $T_6 = 12 \Rightarrow a + 5d = 12 \dots (i)$
 $T_8 = 22 \Rightarrow a + 7d = 22 \dots (ii)$
On subtracting (i) from (ii), we get $2d = 10 \Rightarrow d = 5$
Putting $d = 5$ in (i), we get $a + 5 \cdot 5 = 12 \Rightarrow a = (12 - 25) = -13$
 \therefore First term = - 13, normal distinction = 5.
 $T_{16} = a + 15d = - 13 + 15 \cdot 5 = (75 - 13) = 62$

Q 5 - Discover the whole of initial 17 terms of the A.P. 5, 9, 13, 17...

A - 627

B - 628

C - 629

D - 630

Answer - C

Explanation

Here $a = 5$, $d = (9 - 5) = 4$ and $n = 17$
 $S_n = n/2 [2a + (n - 1) d]$
 $S_{17} = 17/2 [2 \cdot 5 + (17 - 1) \cdot 4] = (17/2 \cdot 74) = 629$

Q 6 - Discover the sum of the arrangement = 2+5+8+...+182.

A - 5612

B - 5712

C - 5812

D - 5912

Answer - A

Explanation

Here $a = 2$, $d = (5 - 2) = 3$ and $T_n = 182$.
 $T_n = 182 \Rightarrow a + (n - 1) d = 182 \Rightarrow 2 + (n - 1) \cdot 3 = 182 \Rightarrow 3n = 183 \Rightarrow n = 61$.
 $S_n = n/2 [2a + (n - 1) d]$
 $= 61/2 \{2 \cdot 2 + (61 - 1) \cdot 3\} = (61/2 \cdot 184) = (61 \cdot 92) = 5612$.

Q 7 - Discover three numbers in A.P. whose sum is 15 and item is 80.

A - 1,4 and 9 or 9,4, and 1

B - 3,5 and 9 or 9,5, and 3

C - 3,6 and 9 or 9,6, and 3

D - 2,5 and 8 or 8,5, and 2

Answer - D

Explanation

Let the numbers be $(a-d)$, a and $(a+d)$. At that point,
 $(a-d) + a + (a+d) = 15 \Rightarrow 3a = 15 \Rightarrow a = 5$
 $(a-d) * a * (a+d) = 80 \Rightarrow (5-d) * 5 * (5+d) = 80$
 $\Rightarrow (25-d^2) = 16 = d^2 = 9 \Rightarrow d = 3$
Numbers are 2, 5, 8 or 8, 5, 2.

Q 8 - Locate the ninth term and the nth term of the G.P. 3,6,12, 24 ...

A - 738, 4^{n-1}

B - 748, 5^{n-1}

C - 758, 6^{n-1}

D - 768, 6^{n-1}

Answer - D

Explanation

Given numbers are in G.P in which $a= 3$ and $r =6/3 = 2$.
 $\therefore T_n = ar^{n-1} \Rightarrow T_9 = 3 * 2^8 = (3 * 256) = 768$
 $T_n = 3 * 2^{n-1} = 6^{n-1}$

Q 9 - On the off chance that the fourth and ninth terms of A G.P. are 54 and 13122 individually, locate the first term, regular proportion and its sixth term.

A - 476

B - 486

C - 496

D - 506

Answer - B

Explanation

Let A be the first term and r be the basic proportion. At that point,
 $T_4 = 54 \Rightarrow ar^3 = 54 \dots (i)$
 $T_9 = 13122 \Rightarrow ar^8 = 13122 \dots (ii)$
On isolating (ii) by (i), we get $r^5 = 13122/54 = 243 = (3)^5 \Rightarrow r = 3$
Putting $r = 3$ in (i), we get $a * 27 = 54 \Rightarrow a = 2$
 \therefore First term = 2 and common ratio = 3.

$T_6 = ar^5 = 2 \cdot 3^5 = 486$. Hence, 6th term = 486.