MATHS

BOOKS - MCGROW HILL EDUCATION

MATHS (HINGLISH)

ARITHMETIC PROGRESSION (A.P.)

Example Solution

1. If $t_n = n(n+3)$, find the difference of its 5th term and 2nd term i.e., $t_5 - t_2$

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2. If $a_n = \frac{n^2}{3n+2}$, find $a_1 a_5$.

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3. If $t_n = \frac{1+(-2)^n}{n-1}$, find $t_6 - t_5$

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4. The first term of an A.P. is 5 and its common difference is -3.

Find the 11th term of an A.P.

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5. Find the 20th term of an A.P. whose 5th term is 15 and the sum of its 3rd and 8th terms is 34.

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6. The angles of a quadrilateral are in A.P. The greatest angle is thrice the least angle. Find the greatest angle.

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7. If $t_n = (3 + 4n)$ of an ap, then the sum of the its 15 terms is:

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8. If $t_3 = 15, S_{10} = 120$, then the tenth term of the series is:

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Multiple Choice Questions

1. If $t_n = \begin{cases} n^2, \text{when n is even} \\ n^2 + 1, \text{when n is odd} \end{cases}$

find $t_{15} - t_{10}$

A. 116

B. 126

C. 106

D. 226

Answer: B

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2. The 5th terms of the sequence defined by $t_1 = 2, t_2 = 3$ and $t_n = t_{n-1} + t_{n-2}$ for $n \geq 3$

A. 13

B. 15

C. 16

D. 18

Answer: A

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3. The sum of the 4th and 8th terms of an AP is 24 and the sum of its 6th and 10th terms is 44. Find the first terms of the AP.

A. 13

B. 12

C. -13

D. -14

Answer: C

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4. The nth terms of an A.P. $\frac{1}{m}, \frac{m+1}{m}, \frac{2m+1}{m}, \ldots$ is:

A. $\frac{m+1-mn}{m}$

B. $\frac{mn-m+1}{m}$

C. $\frac{mn-m-n}{m}$

D. $\frac{mn+m-n}{m}$

Answer: B

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5. If the numbers $3k+4, 7k+1$ and $12k-5$ are in A.P., then the value of k is

A. 2

B. 3

C. 4

D. 5

Answer: B

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6. An AP consists of 50 terms of which 3rd term is 12 and the last term is 106. Find the 29th term.

A. 58

B. 60

C. 61

D. 64

Answer: D

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7. The 4th term of A.P. is equal to 3 times the first term and 7th term exceeds twice the third term by 1. Find its nth term.

A. $n + 2$

B. $3n + 1$

C. $2n + 1$

D. $3n + 2$

Answer: C

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8. If 5 times the 5th term of an A.P. is the same as 7 times the 7th term, then find its 12th terms.

A. 0

B. 11

C. 14

D. 18

Answer: A

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9. For what value of n, the nth terms of the arithmetic progressions 63, 65, 67, ... and 3, 10, 17,... are equal?

A. 10

B. 11

C. 12

D. 13

Answer: D

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10. Which term of the AP : 3, 15, 27, 39, ... Will be 132 more than its 54^{th} term ?

A. 1st

B. 63rd

C. 65th

D. None of these

Answer: C

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11. Find the sum of first 31 terms of an A.P. whose nth term is $\left(3+\frac{2n}{3}\right)$.

A. $423\frac{2}{3}$

B. $413\frac{1}{3}$

C. $417\frac{2}{3}$

D. $419\frac{2}{3}$

Answer: A

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12. If the sum of first n terms of an A.P. is $3n^2 - 2n$, then its 19th term is

A. 123

B. 118

C. 109

D. 107

Answer: C

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13. If the third and 11th terms of an A.P. are 8 and 20 respectively, find the sum of first ten terms.

A. $105\frac{1}{2}$

B. 108

C. $117\frac{1}{2}$

D. $203\frac{1}{2}$

Answer: C

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14. How many terms of the A.P : 9, 17 25,... must be taken to give sum of 636 ?

A. 15

B. 14

C. 13

D. 12

Answer: D

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15. A man saves ₹320 during the first month, ₹360 in the second month, ₹400 in the third month. If he continues his savings in this

sequence, in how many months will he save ₹20,000?

A. 28

B. 25

C. 22

D. 20

Answer: B

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