Algebra 2nd Sec.

Final revision

The number of terms of the sequence (7 , 11 , 15 , ... , 271) is ....

(a) 34 (b) 169 (c) 67 (d) 313

The first negative term of the sequence (35 , 33 , 31 , 29 , ...) is ....

(a) T_{18} (b) T_{19} (c) T_{36} (d) T_{24}

If we insert 7 arithmetic means between -24 , 16 , then the fourth mean is ....

(a) zero (b) -9 (c) 1 (d) -4

An arithmetic sequence in which $T_n = m^2$, $T_m = n^2$, then the common difference of the arithmetic sequence = ...

(a) $m^2 + n^2 - 2$ (b) $m + n$ (c) $-m - n$ (d) $-m + n$

If (T_n) is an arithmetic sequence in which $T_1 + T_5 + T_{10} + T_{16} = 64$, then the sum of the first 15 terms = ...

(a) 120 (b) 180 (c) 240 (d) 360

$\sum_{r=1}^{n} n^2 = \ldots\ldots\ldots\ldots\ldots$

(a) $\frac{n(n+1)}{2}$ (b) $\frac{n(n+1)(2n+1)}{6}$ (c) n^3 (d) $m^2 r$

If the quantities $\frac{a}{b}$, $\frac{b}{c}$, $\frac{c}{b}$ are in arithmetically sequent , then c (c + a) = ...

(a) b^2 (b) $4\ b^2$ (c) $2\ b^2$ (d) $2\ b$

If the arithmetic mean of two positive numbers is 7.5 and their geometric mean is 6 , then the difference between the two numbers = ...

(a) 3   (b) 5   (c) 7   (d) 9

In a geometric sequence , $T_1 \times T_5 = \ldots\ldots\ldots\ldots\ldots$

(a) $(T_3)^2$ (b) $(T_1)^2$ (c) $(T_5)^2$ (d) $(T_2)^2$

An arithmetic sequence in which $S_5 - S_4 = 20$, $S_8 - S_7 = 29$, then $T_{51} =$ ……………

(a) 49 (b) 98 (c) 155 (d) 158

The n^{th} term of the geometric sequence $\left(\frac{-1}{2}, \frac{1}{4}, \frac{-1}{8}, \ldots\right)$ is ....

(a) $\left(\frac{-1}{2}\right)^{n-1}$ (b) $\left(\frac{1}{2}\right)^{n-1}$ (c) $\left(\frac{1}{2}\right)^{n}$ (d) $\left(\frac{-1}{2}\right)^{n}$

An infinite geometric sequence in which the first and second terms are two positive integers and their sum is 3 , then $S_\infty = \cdots\cdots\cdots\cdots$

(a) 4 (b) 8 (c) 64 (d) 1023

If a and b are two arithmetic means between x and y

ℓ , m are two geometric means between x and y , then $\frac{a+b}{\ell m} = \dots\dots\dots\dots$

(a) $\frac{x+y}{2xy}$ (b) $\frac{2xy}{x+y}$ (c) $\frac{x+y}{xy}$ (d) $\frac{xy}{x+y}$

The sum of the sequaence (3 , 6 , 12 , ... , 384) equals ....

(a) 405 (b) 567 (c) 657 (d) 765

The sum of the terms of the geometric sequence (81 , 27 , 9 , ...) equals ....

(a) $\frac{243}{4}$ (b) 117 (c) 118 (d) $\frac{243}{2}$

An arithmetic sequence in which $\frac{T_7}{T_3} = \frac{15}{7}$, then $\frac{S_7}{S_3} = \ldots\ldots\ldots\ldots\ldots$

(a) $\frac{22}{17}$ (b) $\frac{21}{5}$ (c) $\frac{16}{15}$ (d) $\frac{15}{7}$

The geometric sequence whose first term = a and its common ratio = r is increasing if ....

(a) $a > 0$, $-1 < r < 0$

(b) $a > 0$, $0 < r < 1$

(c) $a < 0$, $-1 < r < 0$

(d) $a < 0$, $0 < r < 1$

The geometric sequence whose first term = a and its common ratio = r is decreasing if ……………

(a) $a > 0$, $-1 < r < 0$

(b) $a > 0$, $0 < r < 1$

(c) $a < 0$, $-1 < r < 0$

(d) $a < 0$, $0 < r < 1$

If the third term in a geometric sequence = 4 , then the product of the first five terms is ....

(a) 4^2 (b) 4^3 (c) 4^5 (d) 4^6

The sum of the first three terms in a geometric sequence is 26. The sum of the next three terms is 702 , then the sequence is ....

(a) (3 , 6 , 12 , ...)

(b) (4 , 6 , 9 , ...)

(c) (8 , 12 , 18 , ...)

(d) (2 , 6 , 18 , ...)

The third term in a geometric sequence is more than the second term by 3 and the sum of the square of the second term and square of the third term is 45 , if the first term is positive , then the sequence is ....

(a) (3 , 6 , 12 , ...)
(b) $\left(\frac{2}{3}, 2, 6, ...\right)$
(c) $\left(\frac{3}{2}, 3, 6, ...\right)$
(d) (2 , 6 , 18 , ...)

(T_n) is an arithmetic sequence in which $T_2 + T_3 = 12$ and $T_{10} = 21$

First : The sequence is ....

(a) $(-6, 2, 10, ...)$ (b) $(0, 4, 8, ...)$ (c) $(-3, 3, 9, ...)$ (d) $(3, 5, 7, ...)$

Second : The sum of the first 20 terms from the sequence = ...

(a) 440 (b) 390 (c) 410 (d) 430

In any arithmetic sequence (T_n) , then $\frac{T_{45}+T_{51}}{T_{48}}=$ ....

(a) 5 (b) 4 (c) 3 (d) 2

The sum of the series $\left(1 + \frac{1}{x} + \frac{1}{x^2} + \cdots\right)$ equals …………… where $x > 1$

(a) $\frac{1}{x-1}$ (b) $\frac{x}{1-x}$ (c) $\frac{x}{x-1}$ (d) $\frac{x}{x^2-1}$

The terms of an arithmetic sequence are positive , $T_7 = 2\,T_4 - 6$ and the first , second and fifth terms form a geometric sequence , then the common difference of the arithmetic sequence could be ....

(a) 6 (b) 12 (c) 15 (d) 18

How many three different digit numbers could be formed from the set of digits $\{1, 3, 6, 7\}$?

(a) 9   (b) 12   (c) 64   (d) 24

The number of ordered pairs (a , b) which can be formed from the elements of the set $\{1 , 2 , 3\}$ where $a \neq b$ is ....

(a) 2 (b) 3 (c) 6 (d) 9

The number of ways of arranging 5 persons around a circular table is ....

(a) 1 (b) 2 (c) 24 (d) 120

The number of ways of choosing a book and a magazine from a set of 6 books and 7 magazines is ……………

(a) 42 (b) 13 (c) 1 (d) 7

If $\lfloor n = a$, then $\lfloor n-1 =$ ……………

(a) $a-1$ (b) $n\,a$ (c) $n+a$ (d) $\frac{a}{n}$

The number of ways of selecting two different letters taking order in consideration from the set of letters $\{a , b , c , d , e , f\}$ equals ……………

(a) ${}^{6}P_{2}$ (b) ${}^{6}C_{2}$ (c) $(6)^{2}$ (d) $(2)^{6}$

If ${}^{n}C_{r} = {}^{n}P_{r}$, then $r \in$ ……………

(a) $\{0\}$ (b) $\{1\}$ (c) $\{0 , 1\}$ (d) $\{0 , 2\}$

$\frac{{}^7P_r}{{}^7P_{r-1}} = \dots\dots\dots\dots$

(a) r (b) r – 1 (c) 7 – r (d) 8 – r

The solution set of the equation ${}^{11}C_r = {}^{11}C_{2r+2}$ is ....

(a) $\{3\}$ (b) $\{-3\}$ (c) $\{3, -3\}$ (d) $\{6\}$

If $\underline{|n+1} = 30\ \underline{|n-1}$, then n = ……………

(a) 5 (b) 6 (c) 29 (d) 30

The solution set of the equation : $\frac{\lfloor x}{10} = {}^{x-1}P_{x-3}$ is ……………

(a) $\{5\}$ (b) $\{6\}$ (c) $\{7\}$ (d) $\{8\}$

If $\lfloor n-5 = 1$, then n $\in$ ……………

(a) $\{6\}$ (b) $\{5, 6\}$ (c) $\{1\}$ (d) $\{5\}$

By how many ways a man and two women can be elected to form a comittee from 5 men and 14 women ?

(a) ${}^{5}C_{1} \times {}^{14}C_{2}$ (b) ${}^{19}C_{3}$ (c) ${}^{5}P_{1} \times {}^{14}P_{2}$ (d) ${}^{19}P_{3}$

If $\frac{\underline{|2n}\ \underline{|n-1}}{\underline{|2n-1}\ \underline{|n+1}} = \frac{1}{3}$, then n = ……………

(a) 3 (b) 5 (c) 7 (d) 9

If ${}^{n}P_{r} = 60$, ${}^{n}C_{r} = 10$, then $n + r =$ ....

(a) 3 (b) 5 (c) 8 (d) 13

If ${}^{n}P_{n-3} = 20$, ${}^{m}C_{n} = {}^{m}C_{2n+1}$, then $m \times n =$ ....

(a) 20 (b) 40 (c) 60 (d) 80

If ${}^{n}P_{1} + {}^{n}C_{2} = 36$, then n = ……………

(a) 9 (b) – 9 or 8 (c) 8 (d) 9 or – 8

If ${}^{n}C_{n-3} = 20$, then n = ...

(a) 3 (b) 5 (c) 6 (d) 8

If ${}^{n+1}C_{n-2} = 56$, then n = ……………

(a) 5 (b) 6 (c) 7 (d) 8

If ${}^{n-m}P_3 = 210$, ${}^{n+m}C_4 = 715$, then $m \times n =$ ……………

(a) 15 (b) 30 (c) 35 (d) 50