Algebra 2nd Sec.

Final revision

$n = ??$ Last $= T_n$ T_{67}

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

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

$a = 7$ $d = 15 - 11 = 4$

$$L = T_n = a + (n-1)d = 271$$

$$7 + 4(n-1) = 271$$

$$7 + 4n - 4 = 271$$

$$4n + 3 = 271$$

$$4n = 268$$

$$n = 67$$

A. S.

-2 -2

The first negative term of the sequence (35 , 33 , 31 , 29 , ...) is ....T_{19}....

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

$a = T_1 = 35$ $d = 33 - 35 = -2$

$T_n < 0$

$a + (n-1)d < 0$

$35 - 2(n-1) < 0$

$35 - 2n + 2 < 0$

$-2n + 37 < 0$

$-2n < -37$

$n > \frac{-37}{-2}$

$n > 18.5$

$\boxed{n = 19}$

$\text{Means} = \text{Term} - 2$ n^{th} mean $= (n+1)^{th}$ term

If we insert 7 arithmetic means between – 24 , 16 , then the fourth mean is …………… T_5

(a) zero (b) – 9 (c) 1 (d) – 4 T_9

$(T_n) = (\underset{T_1}{-24}, \underbrace{\text{- - - - -}}_{7\text{ means}}, 16)$

$T_1 = \boxed{a = -24}$

$T_9 = a + 8d = 16$

$-24 + 8d = 16$

$8d = 16 + 24$

$8d = 40$

$\boxed{d = 5}$

4^{th} mean $= T_5 = a + 4d$

$= -24 + 4(5) = -4$

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

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

$$T_n = a + (n-1)d = m^2$$

$$-$$

$$T_m = a + (m-1)d = n^2$$

$$(n-1)d - (m-1)d = m^2 - n^2$$

$$d\,[n - \cancel{1} - m + \cancel{1}] = (m+n)(m-n)$$

$$d(n-m) = (m+n)(m-n)$$

$$-d(m-\cancel{n}) = (m+n)(m-\cancel{n})$$

$$d = -(m+n)$$

$$\boxed{d = -m - n}$$

S_{15}

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

$$T_1 + T_5 + T_{10} + T_{16} = 64$$

$$a + a + 4d + a + 9d + a + 15d = 64$$

$$4a + 28d = 64 \qquad \boxed{\div 4}$$

$$\boxed{a + 7d = 16} \rightarrow (1)$$

$$S_n = \frac{n}{2}[2a + (n-1)d]$$

$$S_{15} = \frac{15}{2}[2a + 14d]$$

$$= \frac{15}{\cancel{2}}(\cancel{2})(a + 7d) =$$

$$= 15(16) = 240$$

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

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

* $\sum_{r=1}^{n} C = Cn$ Ex $\sum_{r=1}^{5} 7 = 7 \times 5 = 35$

* $\sum_{r=1}^{n} n = \frac{n(n+1)}{2}$ Ex $\sum_{r=1}^{10} n = \frac{10(11)}{2} = 55$

* $\sum_{r=1}^{n} n^2 = \frac{n(n+1)(2n+1)}{6}$ Ex $\sum_{r=1}^{4} n^2 = \frac{4(5)(9)}{6} = 30$

$\sum_{x=1}^{7} (x^2 + 5x - 6)$ [Show your steps]

$\sum_{x=1}^{7} x^2 + 5\sum_{x=1}^{7} x - \sum_{x=1}^{7} 6$

$\frac{(7)(8)(15)}{6} + 5\,\frac{7(8)}{2} - 6 \times 7 = 238$

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) $2\,b$

A-mean

2(middle) = 1st + 3rd

$$2\,\frac{b}{c} = \frac{a}{b} + \frac{c}{b}$$

$$\frac{2b}{c} = \frac{a+c}{b} \Rightarrow c(a+c) = 2b^2$$

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

(a, b, c)

A. mean $\Rightarrow \boxed{2b = a + c}$

$b = \frac{a+c}{2}$

G. mean $\Rightarrow b^2 = ac$

$b = \pm\sqrt{ac}$

let two no. a, c

$a + c = 15$

$\boxed{c = 15 - a}$

$ac = 36$

$a(15 - a) = 36$

$15a - a^2 = 36$

$a^2 - 15a + 36 = 0$

$\boxed{a = 12}$ or $\boxed{a = 3}$

$\boxed{c = 3}$ $\boxed{c = 12}$

diff = $12 - 3 = 9$

$3 - 12 = -9$

$T_n = ar^{n-1}$

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

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

$T_1 \times T_5$

$a \times ar^4 = a^2 r^4$

$= (ar^2)^2 = (T_3)^2$

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

$S_5 - S_4 = T_5 = a + 4d = 20$

$S_8 - S_7 = T_8 = a + 7d = 29$

$a = 8$ $d = 3$

$T_{51} = a + 50d = 8 + 50(3) = 158$

T_n rule

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) $\left(\frac{-1}{2}\right)^{n}$

$a = \frac{-1}{2}$ $r = \frac{1/4}{-1/2} = -\frac{1}{2}$

$T_n = ar^{n-1}$

$T_n = \left(-\frac{1}{2}\right)^1\left(-\frac{1}{2}\right)^{n-1} = \left(-\frac{1}{2}\right)^{\cancel{1}+n-\cancel{1}}$

$\left(-\frac{1}{2}\right)^{n}$

$-1 < r < 1$

$|r| < 1$

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

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

$(T_n) = \cancel{(1, 2, ---)}$

$\cancel{r = \frac{2}{1}}$ ref.

$(T_n) = (2, 1, ---)$

$r = \frac{1}{2}$ = ✓

$a = 2$

$r = \frac{1}{2}$

$$S_\infty = \frac{a}{1-r} = \frac{2}{1-\frac{1}{2}} = 4$$

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

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

$\boxed{A.S}$

(x, a, b, y)

$2a = x + b$

$2b = a + y$

$2a + 2b = a + b + x + y$

$\boxed{a + b = x + y}$

$\boxed{G.S}$

(x, ℓ, m, y)

$\ell^2 = xm$

$m^2 = \ell y$

$\ell^{\cancel{2}} m^{\cancel{2}} = \cancel{\ell m}\, xy$

$\boxed{\ell m = xy}$

$\frac{\ell^{\cancel{2}} m^{\cancel{2}}}{\cancel{\ell m}} = xy$

G.S

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

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

$a = 3$ $r = 2$ $L = 384$

$$S_n = \frac{a - Lr}{1 - r} = \frac{3 - 384(2)}{1 - 2} = 765$$

S_∞

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

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

$a = 81$ $r = \frac{27}{81} = \frac{1}{3}$

$$S_\infty = \frac{a}{1-r} = \frac{81}{1-\frac{1}{3}} = \frac{243}{2}$$

$\frac{n}{2}[2a+(n-1)d]$

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

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

$\frac{T_7}{T_3} = \frac{a+6d}{a+2d} = \frac{15}{7}$

$7a+42d = 15a+30d$

$42d-30d = 15a-7a$

$12d = 8a$ $\div 4$

$\boxed{3d = 2a}$

$\boxed{a = \frac{3}{2}d}$

$\frac{S_7}{S_3} = \frac{\frac{7}{\cancel{2}}[2a+6d]}{\frac{3}{\cancel{2}}[2a+2d]} = ?$

$= \frac{7(a+3d)}{3(a+d)}$

$= \frac{7(1.5d+3d)}{3(1.5d+1d)}$

$= \frac{7(4.5\cancel{d})}{3(2.5)\cancel{d}} = \frac{21}{5}$

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

d $a = -100$ $r = \frac{1}{2}$ $(-100, -50, -25, --$

a $a = 100$ $r = \frac{-1}{2}$ $(100, -50, 25$

b $a = 100$ $r = \frac{1}{2}$ $(100, 50, 25$

c $a = -100$ $r = -\frac{1}{2}$ $(-100, 50, -25$

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

~~a~~ $a = 100$ $r = -\frac{1}{2}$

b $a = 100$ $r = \frac{1}{2}$ $(100, 50, 25, \text{---}$

* $T_3 = ar^2 = 4$

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

(a) 4^2 (b) 4^3 $\div r$ (c) 4^5 $\times r$ (d) 4^6

$$\frac{4}{r^2} \times \frac{4}{r} \times 4 \times 4r \times 4r^2$$

$$(4)^5$$

$$a-2\cancel{d},\ a-\cancel{d},\ a + a+\cancel{d},\ a+2\cancel{d}$$

$$5a$$

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 , ...)

$$a + ar + ar^2 = 26 \Rightarrow a(1 + r + r^2) = 26$$

$$ar^3 + ar^4 + ar^5 = 702 \Rightarrow ar^3(1 + r + r^2) = 702$$

$$\frac{\cancel{a}r^3 \cancel{(1 + r + r^2)}}{\cancel{a}\cancel{(1 + r + r^2)}} = \frac{702}{26} = r^3 = 27$$

$$r = 3$$

(2, 6, 18, ...

$$a = \frac{26}{1 + 3 + 9} = 2 \quad a = 2$$

$T_3 - T_2 = 3$

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 , ...)

$T_3 - T_2 = 3$

$ar^2 - ar = 3$

$ar(r-1) = 3$

by squaring

$a^2r^2(r-1)^2 = 9$

$T_2^2 + T_3^2 = 45$

$(ar)^2 + (ar^2)^2 = 45$

$a^2r^2 + a^2r^4 = 45$

$a^2r^2(1+r^2) = 45$

$\frac{\cancel{a^2r^2}(1+r^2)}{\cancel{a^2r^2}(r^2-2r+1)} = \frac{45}{9}$

$a = \frac{3}{r(r-1)}$

$\frac{1+r^2}{r^2-2r+1} = \frac{5}{1} \Rightarrow 5r^2 - 10r + 5 - 1 - r^2 = 0$

$4r^2 - 10r + 4 = 0$

$r = 2$ $\quad$ ~~$r = \frac{1}{2}$~~ $\quad$ ~~$a = -ve$~~

$a = \frac{3}{2}$

$\left(\frac{3}{2}, 3, 6, ...\right)$

(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

$a + d + a + 2d = 12$

$\boxed{2a + 3d = 12} \rightarrow (1)$

$\boxed{a + 9d = 21} \rightarrow (2)$

$\boxed{a = 3 \quad d = 2}$

$S_n = \frac{n}{2}[2a + (n-1)d]$ (20 − 1)

$S_{20} = 10[6 + 19(2)] = 440$

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

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

$$\frac{a+44d+a+50d}{a+47d} = \frac{2a+94d}{a+47d}$$

$$= \frac{2\cancel{(a+47d)}}{\cancel{a+47d}} = 2$$

S_∞

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) $\frac{x}{x^2-1}$

$$r=\frac{\frac{1}{x}}{1}=\frac{1}{x}$$

$$S_\infty=\frac{a}{1-r}=\frac{1}{1-\frac{1}{x}}\times\frac{x}{x}$$

$$=\frac{x}{x-1}$$

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

$T_7 = 2T_4 - 6$

$a + 6d = 2(a + 3d) - 6$

$a + \cancel{6d} = 2a + \cancel{6d} - 6$

$6 = 2a - a$

$\boxed{a = 6}$

G.S

(T_1 , T_2 , T_5)

$(T_2)^2 = T_1 \times T_5$

$(a + d)^2 = a(a + 4d)$

$(6 + d)^2 = 6(6 + 4d)$

$\cancel{36} + 12d + d^2 = \cancel{36} + 24d$

$d^2 - 12d = 0$

$\cancel{d = 0}$ $\quad d = 12$

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

${}^{4}P_{3} = 24$

H T U

$\boxed{2} \times \boxed{3} \times \boxed{4}$

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

$$ {}^{3}P_{2} = 3 \times 2 = 6 $$

The number of ways of arranging 5 persons around a circular table is .... $\lfloor 4$

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

$\lfloor n = 24$ ways

Circ. table $= \lfloor n-1$

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

$^{6}C_1$ $^{7}C_1$

and $\times$

or $+$

$6 \times 7 = 42$

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

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

$\lfloor 5 = 5\lfloor 4 = 5\times 4\lfloor 3$

$\lfloor n = n\lfloor n-1$

$\lfloor n = a$

$n\lfloor n-1 = a$

$\lfloor n-1 = \frac{a}{n}$

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) $(2)^6$

$${}^{6}P_{2} = 6 \times 5 = 30$$

If ${}^nC_r = {}^nP_r$, then $r \in$ ....

1

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

$${}^nC_r = \frac{\cancel{{}^nP_r}}{\lfloor r} = \frac{\cancel{{}^nP_r}}{1}$$

$$\therefore \lfloor r = 1$$

$r = 0$ $\qquad$ $r = 1$

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

(a) r (b) r – 1 (c) 7 – r (d) 8 – r

$$^nP_r = \frac{n!}{(n-r)!}$$

$$^7P_r \div {}^7P_{r-1}$$

$$\frac{7!}{(7-r)!} \div \frac{7!}{(7-r+1)!}$$

$$\frac{\cancel{7!}}{(7-r)!} \times \frac{(8-r)!}{\cancel{7!}} = \frac{(8-r)\cancel{(7-r)!}}{\cancel{(7-r)!}}$$

$$= 8-r$$

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

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

$2r+2 = r$

$r = \cancel{-2}$

or

$2r+2+r = 11$

$3r = 9$

$r = 3$

${}^{n}C_{x} = {}^{n}C_{y}$

$x = y$

$x + y = n$

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

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

$$(n+1)(n)\cancel{\underline{|n-1}} = 30\,\cancel{\underline{|n-1}}$$

$$n^2 + n - 30 = 0$$

$n = 5$ $\cancel{n = -6}$

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

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

$$\frac{\lfloor x}{10} = \frac{\lfloor x-1}{\lfloor \cancel{x}-1-\cancel{x}+3}$$

$$\frac{\lfloor x}{10} = \frac{\lfloor x-1}{\lfloor 2}$$

$$\frac{x\cancel{\lfloor x-1}}{10} = \frac{\cancel{\lfloor x-1}}{2} \Rightarrow 2x = 10$$

$$\boxed{x = 5}$$

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

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

$n - 5 = 0$

$n = 5$

$n - 5 = 1$

$n = 6$

1m 2w

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)~~ ${}^{19}P_{3}$

$${}^{5}C_{1} \times {}^{14}C_{2}$$

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

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

$$\frac{2\cancel{n}\,\cancel{\underline{|2n-1}} \times \cancel{\underline{|n-1}}}{\cancel{\underline{|2n-1}} \times (n+1)(\cancel{n})\,\cancel{\underline{|n-1}}} = \frac{1}{3}$$

$$\frac{2}{n+1} = \frac{1}{3} \Rightarrow n+1 = 6$$

$$\boxed{n=5}$$

If ${}^{n}P_{r} = 60$, ${}^{n}C_{r} = 10$, then $n + r = \dots 5 + 3$

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

${}^{n}P_{r} = 60$

${}^{n}P_{3} = 60$

$n = 5$

$${}^{n}C_{r} = \frac{{}^{n}P_{r}}{\lfloor r} = 10$$

$$\frac{60}{\lfloor r} = \frac{10}{1}$$

$$\lfloor r = 6$$

$r = 3$

$\lfloor 1 = 1$

$\lfloor 2 = 2$

$\lfloor 3 = 6$

$\lfloor 4 = 24$

$\lfloor 5 = 120$

$\lfloor 6 = 720$

$\boxed{n=5}$

If ${}^{n}P_{n-3} = 20$, ${}^{m}C_{n} = {}^{m}C_{2n+1}$, then $m \times n =$ ……16×5……

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

$$\frac{\lfloor n}{\lfloor \cancel{n}-\cancel{n}+3} = 20$$

~~steps~~

$$\frac{\lfloor n}{\lfloor 3} = 20$$

$$\lfloor n = 120$$

$$\boxed{n=5}$$

$${}^{m}C_{n} = {}^{m}C_{2n+1}$$

$$2n+1 = n \Rightarrow n \cancel{=} -1$$

$$2n+1+n = m$$

$$\boxed{3n+1=m}$$

$$15+1 = m$$

$$\boxed{m=16}$$

If $^{n}P_1 + {^{n}C_2} = 36$, then n = ...

(a) 9 ~~(b)~~ – 9 or 8 (c) 8 ~~(d)~~ 9 or – 8

$n + {^{n}C_2} = 36$

$^{n}P_1$

$\cancel{9 + {^{9}C_2} = 36}$

$8 + {^{8}C_2} =$

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

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

$${}^{n}C_{\cancel{n}-\cancel{n}+3} = {}^{n}C_{3} = 20$$

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

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

$$ {}^{n+1}C_{\cancel{n}+1-\cancel{n}+2} = {}^{n+1}C_{3} = 56 $$

If $^{n-m}P_3 = 210$, $^{n+m}C_4 = 715$, then $m \times n =$ .... 10×3

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

$^{n-m}P_3 = 210$

$^{n+m}C_4 = 715$

$\boxed{n - m = 7}$

$\boxed{n + m = 13}$