

①

પ્રથમ ત્રિકોણ : 2019

ગુણિત પ્રદાન યોજના

દાંડા : 10

વિષય : ગણિત

KKV

21412

દાંડા : 10

10/10/19

સમગુણ : 80

9

KKV

[A]

દરેક સંખ્યા જવાબનો ① ગુણ

(16)

1) 5

2) b નો સ્કેલ

3) 0.375

4) 7 વાર

5) 2

6) સૂચ્ય

7) 12

8) 11

9) 4/3

10) 25

11) સંખ્યા

12) 5

13) (0, 5)

14) 3/4

15) 3

16) 3/7

જવાબ

[B]

દરેક સંખ્યા જવાબનો ② ગુણ

(20)

17)

દાંડા : $\sqrt{5} = \frac{a}{b}$ [$\begin{matrix} a \in \mathbb{N} \\ b \in \mathbb{N} \end{matrix}$] ના a, b અવિભાજ્ય સંખ્યા છે

$\rightarrow \frac{a}{b} = \sqrt{5}$

$\therefore a = \sqrt{5} b$

$a^2 = 5b^2$ — $\left(\frac{1}{2}\right)$

$\therefore a$ એ 5 વડે વિભાજ્ય છે

$a = 5a_1$ જ્યાં $a_1 \in \mathbb{N}$

$\therefore a^2 = 25a_1^2$ — $\left(\frac{1}{2}\right)$

$5b^2 = 25a_1^2$

$\therefore b^2 = 5a_1^2$

$\therefore b$ એ 5 વડે વિભાજ્ય છે — $\left(\frac{1}{2}\right)$

આમ a અને b એ 5 વડે વિભાજ્ય છે જે દાંડાના અવિભાજ્ય છે

$\therefore \sqrt{5}$ અસંખ્ય છે

$\left(\frac{1}{2}\right)$

2x
3x
2x
↑

OR 17)

$$\frac{891}{1250} = \frac{891}{5^4 \times 2}$$

$$= \frac{891 \times 2^3}{5^4 \times 2^4} \quad \text{--- (1)}$$

Solusio

$$= \frac{7128}{2^4 \times 5^4}$$

$$= 0.7128 \quad \text{--- (1)}$$

18)

$$6 = 2 \times 3 \rightarrow h(x) = 6$$

$$72 = 2^3 \times 3^2$$

$$120 = 2^3 \times 3 \times 5 \quad \left. \begin{array}{l} \text{--- (1)} \\ \text{--- (1)} \end{array} \right\} \rightarrow m(x) = 2^3 \times 3^2 \times 5$$

$$= 360 \quad \text{--- (1)}$$

19)

$$p(x) = x^2 - 7x + 12$$

$$= (x-4)(x-3)$$

$$\rightarrow p(x) = 0$$

$$(x-4)(x-3) = 0$$

$$\therefore \boxed{x=4} \quad \boxed{x=3} \quad \text{--- (1)}$$

$$\rightarrow \text{jumlahnya} \text{ sumbangan} = 4+3 = 7 = \frac{-(-7)}{1} = \frac{-b}{a}$$

$$\rightarrow \text{jumlahnya} \text{ jumlah} = 4 \times 3 = 12 = \frac{12}{1} = \frac{c}{a} \quad \left. \begin{array}{l} \text{--- (1)} \end{array} \right\}$$

OR 19)

$$p(x) = x^3 + 12x^2 + ax + 60$$

$$p(-3) = 0$$

$$(-3)^3 + 12(-3)^2 + a(-3) + 60 = 0 \quad \text{--- (1)}$$

$$-27 + 12 \times 9 - 3a + 60 = 0$$

$$-27 + 108 - 3a + 60 = 0$$

$$168 - 27 = 3a$$

$$141 = 3a$$

$$a = \frac{141}{3}$$

$$\boxed{a = 47} \quad \text{--- (1)}$$

$$2x + y = 10 \dots\dots (1)$$

$$3x + 2y = 17 \dots\dots (2)$$

→ સમ. (1) નીથી y ની સહાયે સમ. (2) ની મુત્તી

$$2x + y = 10$$

$$y = 10 - 2x \dots\dots (3)$$

$$\frac{1}{2}$$

$$\rightarrow 3x + 2y = 17$$

$$3x + 2(10 - 2x) = 17 \rightarrow \text{સમ. (3) ની } x = 3 \text{ મુત્તી}$$

$$3x + 20 - 4x = 17$$

$$-x = 17 - 20$$

$$-x = -3$$

$$\boxed{x = 3}$$

$$\frac{1}{2}$$

$$y = 10 - 2x$$

$$= 10 - 2(3)$$

$$= 10 - 6$$

$$\boxed{y = 4}$$

$$\text{--- (1)}$$

૨૧)

$$2^3, 3^3, 4^6, \dots\dots$$

$$a = 8, \quad d = 27 - 8 = 19 \text{ --- (1)}$$

$$\text{--- (1)}$$

૨૨)

દા.તે \bar{A} A (3, 4), B (1, -3) નથી P(x, 0) છે

$$AP^2 = BP^2$$

$$(3-x)^2 + (4-0)^2 = (1-x)^2 + (-3-0)^2 \text{ --- (1)}$$

$$9 - 6x + x^2 + 16 = 1 - 2x + x^2 + 9$$

$$16 - 1 = -2x + 6x$$

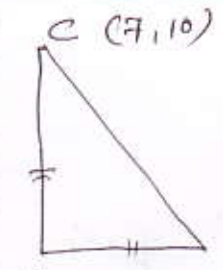
$$15 = 4x$$

$$\boxed{x = \frac{15}{4}}$$

$$\therefore P(x, 0) = \left(\frac{15}{4}, 0\right)$$

$$\text{--- (1)}$$

23)



$$\begin{aligned} \rightarrow AB^2 &= (-2-3)^2 + (k+4)^2 \\ &= 25 + k^2 + 8k + 16 \\ &= k^2 + 8k + 41 \end{aligned}$$

A (-2, k)

B (3, -4)

$$\begin{aligned} \rightarrow BC^2 &= (3-7)^2 + (-4-10)^2 \\ &= 16 + 196 \\ &= 212 \end{aligned}$$

$$\begin{aligned} \rightarrow AC^2 &= (-2-7)^2 + (k-10)^2 \\ &= 81 + k^2 - 20k + 100 \\ &= k^2 - 20k + 181 \end{aligned}$$

$\rightarrow \angle A = 90^\circ$

$\therefore BC^2 = AB^2 + AC^2$

$212 = k^2 + 8k + 41 + k^2 - 20k + 181$

$\therefore 2k^2 - 12k + 222 - 212 = 0$

$\therefore 2k^2 - 12k + 10 = 0$

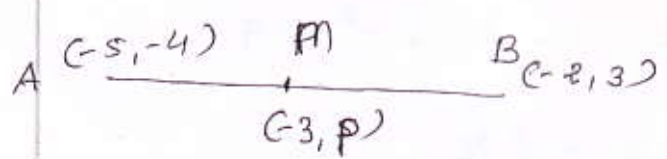
$\therefore k^2 - 6k + 5 = 0$

$\therefore (k-5)(k-1) = 0$

$\therefore \boxed{k=5}, \boxed{k=1}$

OR

23)



दिया है A(-5, -4), B(-2, 3) और AB में M(3, p) का λ गुणोत्तरानि अनुपात है

$\rightarrow M$ का x अक्ष = $\frac{\lambda x_2 + x_1}{\lambda + 1}$

$-3 = \frac{\lambda(-2) + (-5)}{\lambda + 1}$

$-3(\lambda + 1) = -2\lambda - 5$
 $-3\lambda - 3 + 2\lambda + 5 = 0$
 $-\lambda + 2 = 0$

$\boxed{\lambda = 2}$

\therefore

$$\bar{x} = \frac{\sum f_i x_i}{n}$$

$$6.5 = \frac{3(x-2) + 5(x+1) + 7(x-3) + 9(x+3)}{x-2 + x+1 + x-3 + x+3} \quad \text{--- (1)}$$

$$\frac{65}{10} \times 4x = 3x - 6 + 5x + 10 + 7x - 21 + 9x - 27$$

$$26x - 240 = -44$$

$$2x = -44$$

$$\boxed{x = -22} \quad \text{--- (1)}$$

or 24)

$$24, 25, 26, x+2, x+3, 30, 31, 34$$

$$n = 8 \text{ (योग)}$$

$$M = \frac{n/2 \text{ युग्म} + (n/2 + 1) \text{ युग्म}}{2}$$

$$27.5 = \frac{4 \text{ युग्म} + 5 \text{ युग्म}}{2} \quad \text{--- (1)}$$

$$55 = x+2 + x+3$$

$$50 = 2x$$

$$\boxed{x = 25} \quad \text{--- (1)}$$

25)

$$\text{कुल संभावनाएँ} = 6 \times 6 = 36$$

$$\text{संभावित संतति} = (1,1), (2,1), (3,1), (4,1), (5,1), (6,1) \quad \text{--- (1)}$$

$$P(A) = \frac{6}{36} = \frac{1}{6} \quad \text{--- (1)}$$

26)

$$n = 50, \quad s = 50 - 8 = 42 \quad \text{--- (1)}$$

$$PCA) = \frac{42}{50} = 0.84 \quad \text{--- (1)}$$

[C]

27) एरर शिवाय शकितो 3 गुण (29)

27)

$$\begin{array}{r}
 x^2 + 11x + 10 \quad | \quad x^3 + 13x^2 + 35x + 50 \\
 \underline{x^3 + 11x^2 + 10x} \\
 2x^2 + 25x + 50 \\
 \underline{2x^2 + 22x + 20} \\
 3x + 30
 \end{array}
 \quad \text{--- (1)}$$

→ $p(x)$ सांगण $3x + 30$ ने भाई-तऱि $x^2 + 11x + 10$ अस
वि.शेष भागण शक्य. --- (1)

OR

27) $p(x) = x^2 + mx + n$

$$q(x) = 2x^2 - 9x + 4$$

$$\rightarrow \alpha + \beta = -\frac{m}{1}$$

$$\rightarrow \alpha_1 + \beta_1 = \frac{9}{2}$$

$$\alpha\beta = \frac{n}{1} \quad \text{--- (1)}$$

$$\alpha_1\beta_1 = \frac{4}{2} = 2 \quad \text{--- (1)}$$

$$\rightarrow \alpha + \beta = 2(\alpha_1 + \beta_1)$$

$$-\frac{m}{1} = 9 \times 2$$

$$\boxed{m = -18} \quad \text{--- (1)}$$

$$\rightarrow \alpha\beta = 2(\alpha_1\beta_1)$$

$$n = 2 \times 2$$

$$\boxed{n = 4} \quad \text{--- (1)}$$

$$3x + 4y = 0 \dots \text{---} \textcircled{1}$$

$$x - 5y = 19 \dots \text{---} \textcircled{2}$$

→ 214. $\textcircled{2}$ નીમ x ની સમીકરણ બંધ 214. $\textcircled{1}$ ની મુત્રની

$$x - 5y = 19$$

$$x = 19 + 5y \dots \text{---} \textcircled{2} \text{ ---} \textcircled{1}$$

$$3x + 4y = 0$$

$$3(19 + 5y) + 4y = 0$$

$$57 + 15y + 4y = 0$$

$$19y = -57$$

$$\boxed{y = -3} \text{ ---} \textcircled{1}$$

→ 214. $\textcircled{3}$ ની $y = -3$ મુત્રની

$$x = 19 + 5y$$

$$= 19 + 5(-3)$$

$$= 19 - 15$$

$$\boxed{x = 4} \text{ ---} \textcircled{1}$$

29)

$$kx + 3y - (k-3) = 0 \Rightarrow a_1x + b_1y + c_1 = 0$$

$$12x + ky - k = 0 \Rightarrow a_2x + b_2y + c_2 = 0$$

$$a_1 = k, b_1 = 3, c_1 = -(k-3)$$

$$a_2 = 12, b_2 = k, c_2 = -k$$

--- $\textcircled{1}$

સમીકરણ ઠીક

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

$$\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k} \text{ ---} \textcircled{1}$$

$$\rightarrow \frac{k}{12} = \frac{3}{k}$$

$$k^2 = 36$$

$$k = \pm 6$$

$$\rightarrow \frac{3}{k} = \frac{-(k-3)}{-k}$$

$$3 = k - 3$$

$$\boxed{k = 6}$$

$$\rightarrow \frac{k}{12} = \frac{k-3}{k}$$

$$k^2 = 12k - 36$$

$$k^2 - 12k + 36 = 0$$

$$(k-6)^2 = 0$$

$$\boxed{k = 6}$$

→ $k = 6$ ની 214 ઠીક

30)

$$10, 7, 4, \dots, -62$$

$$a = 10, d = -3, l = T_n = -62$$

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

$$-62 = 10 + (n-1)(-3)$$

①

$$\frac{-72}{-3} = n-1$$

$$24+1 = n$$

$$\boxed{n = 25}$$

①

દેલેલેલ 11 મુ પદ એટલે 15 મુ પદ બને.

$$T_{15} = 10 + (15-1)(-3)$$

$$= 10 - 42$$

$$\boxed{T_{15} = -32}$$

$$\therefore \text{પાંચમું પદ} = -32$$

①

OR

30)

$$x, x-20, x-40, x-60, x-80, x-100, x-120$$

$$a = x$$

$$l = x-120$$

$$n = 7$$

$$S_n = 700$$

$$S_n = \frac{n}{2}(a+l)$$

①

$$700 = \frac{7}{2}(x+x-120)$$

$$200 = 2x-120$$

$$320 = 2x$$

$$\boxed{x = 160}$$

①

$$\text{પ્રથમ } x = 160,$$

$$\text{બીજું } x-20 = 140$$

$$\text{ત્રીજું } x-40 = 120$$

$$\text{ચોથું } x-60 = 100$$

$$\text{પાંચમું } x-80 = 80$$

$$\text{છઠ્ઠું } x-100 = 60$$

$$\text{સાતમું } x-120 = 40$$

①

$$\begin{aligned} \therefore P(x, y) &= \left(\frac{3(2) + 4(-2)}{3+4}, \frac{3(-4) + 4(-2)}{3+4} \right) \\ &= \left(\frac{6-8}{7}, \frac{-12-8}{7} \right) \\ &= \left(-\frac{2}{7}, -\frac{20}{7} \right) \end{aligned}$$

32)

class	f_i	x_i	$d_i = x_i - a$	$f_i d_i$
0-6	11	3	-14	-154
6-10	10	8	-9	-90
10-14	7	12	-5	-35
14-20	4	17	0	00
20-28	4	24	7	28
28-38	3	33	16	48
38-40	1	39	22	22
	$\eta = 40$			$\sum f_i d_i = -181$

$$\bar{X} = a + \frac{\sum f_i d_i}{\eta}$$

$$= 17 + \frac{-181}{40}$$

$$= 17 - 4.525$$

$$= 12.475$$

$$\bar{X} = 12.48 \text{ (approx)}$$

वर्ग	f_i
1-3	5
3-5	6
5-7	9
7-9	3
9-11	3
11-13	4

अज्ञात वक्राची चोरी 5-7

$l = 5$
 $h = 2$
 $f_1 = 9$
 $f_0 = 6$
 $f_2 = 3$

①

$$अज्ञात = l + \left[\frac{f_1 - f_0}{2f_1 + f_0 + f_2} \right] \times h$$

$$= 5 + \left[\frac{9 - 6}{18 - 6 - 3} \right] \times 2 \quad \text{--- ①}$$

$$= 5 + \left[\frac{3}{9} \right] \times 2$$

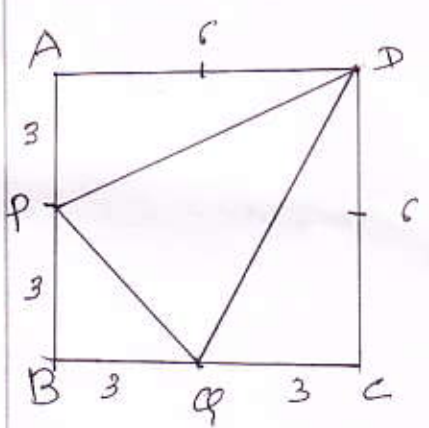
$$= 5 + \frac{2}{3}$$

$$= 5 + 0.66$$

$$अज्ञात = 5.66$$

①

34)



→ चौरसचे क्षेत्र = $6 \times 6 = 36$ क्षेत्र --- ①

→ ΔPQC क्षेत्र = $ABCD - [APD + PBQ + QCD]$

$$= 36 - \left[\frac{1}{2} \times 3 \times 6 + \frac{1}{2} \times 3 \times 3 + \frac{1}{2} \times 3 \times 3 \right]$$

$$= 36 - [9 + 4.5 + 4.5]$$

$$= 36 - [18]$$

$$= 18 \text{ क्षेत्र} \quad \text{--- ①}$$

$$\text{मागेलि संमापण} = \frac{\Delta PQR \text{ जे.}}{\text{सं. ABCD जे.}}$$

$$= \frac{\frac{15}{10 \times 36} \times 3}{2 \times 4}$$

$$P(A) = \frac{3}{8} \quad \text{--- (1)}$$

[P] एरि साया जवाणवा (4) गुण

35) $P(x) = 2x^4 - 3x^3 - 3x^2 + 6x - 2$

< 20 >

$\sqrt{2}$ अने $-\sqrt{2}$ अि $P(x)$ वा शून्यो छे

$\therefore (x - \sqrt{2}), (x + \sqrt{2})$ अि $P(x)$ वा अयण छे

$\therefore x^2 - 2$ य (1) $P(x)$ वा अयण वाय. --- (1)

	$2x^2 - 3x + 1$	
$\begin{matrix} 2x^4 \\ 2x^4 \end{matrix}$	$\begin{array}{r} 2x^4 - 3x^3 - 3x^2 + 6x - 2 \\ 2x^4 + 0 - 4x^2 \\ \hline -3x^3 + x^2 + 6x - 2 \\ -3x^3 + 0 + 6x \\ \hline x^2 - 2 \\ x^2 - 2 \\ \hline 0 \quad 0 \end{array}$	

--- (2)

$\therefore P(x) = (x^2 - 2) \cdot q'(x)$ अा $q'(x) = 2x^2 - 3x + 1$

$$\begin{aligned} \therefore q'(x) &= 2x^2 - 3x + 1 \\ &= (2x - 1)(x - 1) \end{aligned}$$

\therefore मागेलि $\frac{1}{2}, 1$ छे

--- (1)

OR
36

દારી + સ્થિર વાહનોની દોડીની ઝડપ x કિમી/તકીત
 નદીના પ્રવાહની ઝડપ y કિમી/તકીત છે

∴ નદીના પ્રવાહની દિશામાં દોડીની ઝડપ $(x+y)$ કિમી/તકીત
 " " " " " " " " $(x-y)$ " " "

પ્રથમ સમસ્યા મુજબ

$$\frac{44}{x+y} + \frac{30}{x-y} = 10$$

$$\left[x = \frac{2y}{21} \Rightarrow y = \frac{21}{2x} \right]$$

બીજી સમસ્યા મુજબ

$$\frac{55}{x+y} + \frac{40}{x-y} = 13$$

————— (1)

$$\frac{1}{x+y} = a \quad \text{અથવા} \quad \frac{1}{x-y} = b \quad \text{લેતી}$$

$$44a + 30b = 10 \quad \dots \dots \text{(1)}$$

$$55a + 40b = 13 \quad \dots \dots \text{(2)}$$

————— (1)

સમ. (1) ને 4 વડે અને સમ. (2) ને 3 વડે ગુણી સમ. (1) - (2) લેતી

$$176a + 120b = 40$$

$$165a + 120b = 39$$

$$\hline 11a = 1$$

$$\therefore \boxed{a = \frac{1}{11}} = \frac{1}{x+y} \quad \therefore x+y = 11 \dots \dots \text{(2)}$$

————— (2)

→ સમ. (1) ની $a = \frac{1}{11}$ મુત્તી

$$44a + 30b = 10$$

$$\hookrightarrow 44 \times \frac{1}{11} + 30b = 10$$

$$\therefore 30b = 10 - 4$$

$$\therefore b = \frac{6}{30}$$

$$\therefore \boxed{b = \frac{1}{5}} = \frac{1}{x-y} \quad \therefore x-y = 5 \dots \dots \text{(3)}$$

2am. (3) + (4) + 2ni

$$x + y = 11$$

$$x - y = 5$$

$$2x = 16$$

$$x = 8$$

$$\frac{1}{2}$$

→ 2am (3) ni $x = 8$ guthi

$$x + y = 11$$

$$8 + y = 11$$

$$y = 11 - 8$$

$$y = 3$$

$$\frac{1}{2}$$

∴ बिचर पालनी सेडीला संस्य
8 आत्म/दसत

जडीवा येडीला संस्य
3 आत्म/दसत

37)

2491 :- (3) गुठी

गुठी - (1) गुठी

38)

" "

OR

38)

" "

39)

वर्ग ^c	f_i	cf
0-10	5	5
10-20	x	$5+x$
20-30	20	$25+x$
30-40	15	$40+x$
40-50	y	$40+x+y$
50-60	5	$45+x+y$

$$x + y + 45 = 60$$

$$\therefore x + y = 15 \dots (1)$$

$$\text{--- (1)}$$

$$\rightarrow M = 28.5$$

$$\therefore M = 20-30 \text{ गी वर्ग }^c$$

$$L = 20$$

$$n = 60$$

$$cf = 45$$

$$f = 20$$

$$h = 10$$

$$M = L + \left[\frac{\frac{n}{2} - cf}{f} \right] \times h$$

$$28.5 = 20 + \left[\frac{30 - 45}{20} \right] 10$$

$$28.5 - 20 = \frac{25 - x}{2}$$

$$8.5 \times 2 = 25 - x$$

$$17 = 25 - x$$

$$x = 25 - 17$$

$$\boxed{x = 8}$$

→ dim. ① ni $x = 8$ guthi

$$x + y = 15$$

$$8 + y = 15$$

$$\boxed{y = 7}$$

————— ①