

i fjes l̄; k, j

vè; k, 9

9.1 Hkfedk

vki us l̄; kvka dk vè; ; u vius ifjosk dh olrvka oð fxius ls ikjnk fd; kA bl dk; Z ea iz; kx dh xbZ l̄; kvka dks x. ku l̄; k, j (counting numbers) ; k ikÑr l̄; k, j (natural numbers) dgk x; k FkA ; sg[1] 2] 3] 4] --A ikÑr l̄; kvka ea 0 dks l̄; fefyr djus ij gea iwKZ l̄; k, j (whole numbers), vFkZ [-0] 1] 2] 3] -- iklr gA bl oð ckn] iwkkel (integers) iklr djusoð fy,] iwKZ l̄; kvka ea ikÑr l̄; kvka oð ½. kRredla (negatives) dks l̄; fefyr fd; k x; kA --- &3] &2] &1] 0] 1] 2] 3 --- iwkkel gA bl izdkj] geus l̄; k i ¼fr (number system) dks ikÑr l̄; kvka ls iwKZ l̄; kvka rd vkj iwKZ l̄; kvka ls iwkkelka rd folr fd; kA



vki dk fHkuka (fractions) ls Hkh ifjp; dj; k x; k FkA ; s $\frac{v\acute{k}}{g}$ numerator , oð denominator , d izdkj dh l̄; k, j gkrh gA tgk; v\acute{k} ; k rks 0 ; k , d èkukRed iwkkel gkrk gS rFkk gj] , d èkukRed iwkkel gkrk gA vki us nks fHkuka dh rgyuk dh] muoð lery; (equivalent) : i (fHkuka) Kkr fd, rFkk mu ij l̄; Hkh pkjka vkelkjHkr l̄; kvka; kx] 0; odyu (?kvkuk)] xqku vkj foHkktu dk vè; ; u fd; kA bl vè; k; e] ge l̄; k i ¼fr dk vkj vkxs folrkj djad ge ifjes l̄; kvka (rational numbers) dh voèkkj. kk dk ifjp; ndj mu ij ; kx] 0; odyu] xqku vkj foHkktu (Hkx) dh l̄; k, j djuk lh[kad

9.2 i fjes l̄; kvkadh vko'; drk

igys ge n[k pð gdf d l̄; izdkj l̄; kvka ls l̄; ¼ foijhr (opposite) fLFkr; ka dks 0; Dr djusoð fy, iwkkelka dk iz; kx fd; k tk l̄; drk gA mnkj. kFk; ; fn , d LFkku oð nk± vkj 3 km njh dks 3 l̄; 0; Dr fd; k tk,] rks ml h LFkku l̄; sck±vkj dh 5 km njh dks &5

Is0; Dr fd;k tk l drk gñ ; fn 150 # ds ykHk dks 150 Is0; Dr fd;k tk,] rks 100 # dh gkfu dks 100 Is0; Dr fd;k tk l drk gñ

bl h izkj dh vud fLFkr; k; gsrh gñ ftuea fHkUkRed I[;k, j (fHkU) I ¼ gsrh gñ ge lemr y Is Åij 750 m dh Åpkbz dks $\frac{3}{4}$ km Is0; Dr dj l drsgñ D;k ge lemr y Is uhrs 750 m dh xgkjbz dks km ea0; Dr dj l drsgñ D;k ge lemr y Is uhrs $\frac{3}{4}$ km dh xgkjbz dks $\frac{63}{4}$ Is0; Dr dj l drsgñ ge n[k l drsgñfd $\frac{63}{4}$ u rks, d iwkkel gS vk\$ u gh , d fHkUA , d h I[;k; kvka dks l fefyr djus o\$ fy,] gea I[;k i ¼fr dks foLrr djus dh vko'; drk gñ

9.3 ifjes I[;k, j D;k gñ

'kCn ^ifjes* (rational) dh mRi flk] in ^vuqkr* (ratio) l sgbz gñ vki tkurs gñfd vuqkr 3 % 2 dks $\frac{3}{2}$ Hkh fy[kk tk l drk gñ ; gk; 3 vk\$ 2 i kNr I[;k, j gñ



bl h izkj] nks iwkkelka p vk\$ q (q > 0) o\$ vuqkr $p:q$ dks $\frac{p}{q}$ fy[kk tk l drk gñ ; gh og : i gsftlea ifjes I[;k, j 0; Dr dh tkrh gñ

, d ifjes I[;k dks, d h I[;k o\$: i ea ifjHkkf"kr fd;k tkrk g\$ ft l s $\frac{p}{q}$, o\$: i ea 0; Dr fd;k tk l o\$] tgk; p vk\$ q iwkkel gñ rFkk q > 0 gñ

bl izkj] $\frac{4}{5}$, d ifjes I[;k gñ ; gk; p = 4 gS vk\$ q = 5 gñ

D;k $\frac{63}{4}$ Hkh , d ifjes I[;k g\$ gk; D;k d p = 63 vk\$ q = 4 iwkkel gñ

- vki us $\frac{3}{8}, \frac{4}{8}, 1\frac{2}{3}$, bR; kfn t\$ h vud fHkU n[kh gñ l Hkh fHkU ifjes I[;k, j gsrh gñ D;k vki bl dk dkj.k crk l drsgñ n'keyo I[;k; kvka 0-5] 2-3] 0-333 bR; kfn o\$ ckjs ea D;k dgk tk l drk g\$ bl izkj dh iR; d I[;k dks, d l keU; fHkU o\$: i ea fy[kk tk l drk g\$ vk\$ bl hfy, ; s ifjes I[;k, j gñ mnkgj.kkFk] $0.5 = \frac{5}{10}, 2.3 = \frac{23}{10}$,

$$0.333 = \frac{333}{1000} \text{ bR; kfnA}$$

i þr%

$$\frac{10}{-15} = \frac{-10}{15} \text{ (dS \lambda)}$$

izkl dhft,
fjDr LFkkuka dks Hkfj, %

(i) $\frac{5}{4} \frac{\square}{16} \frac{25}{\square} \frac{615}{\square}$

(ii) $\frac{63}{7} \frac{\square}{14} \frac{9}{\square} \frac{66}{\square}$

, d ifjes l[;k oð v[ak v[ks gj dks, d gh 'k[;sj (non-zero) i wkked l s xqkk djus ij] geanh gþz ifjes l[;k oð ler[; (;k r[;) , d vlu; ifjes l[;k iklr gkrh g[;g Bhd ler[; ; fHkuu iklr djus t[;k gh g[xqkk dh rjg] , d gh 'k[;sj i wkked l s v[ak v[ks gj dks Hkkx nsusij Hkh ler[; ifjes l[;k, i iklr gkrh g[mnkgj. kKFk]

$$\frac{10}{615} = \frac{10}{615} \frac{65}{65} \frac{62}{3} , \frac{612}{24} = \frac{612}{24} \frac{12}{12} \frac{61}{2}$$

ge $\frac{-2}{3}$ dks $-\frac{2}{3}, \frac{-10}{15}$ dks $-\frac{10}{15}$ bR; kfn] fy[krs g[

9.4 ìkukRed v[ks ½. kkRed ifjes l[;k, i

ifjes l[;k $\frac{2}{3}$ ij fopkj dhft, A bl l[;k oð v[ak v[ks gj n[;ka gh ìkukRed i wkked g[, d h ifjes l[;k dks, d ìkukRed ifjes l[;k dgrsg[vr% $\frac{3}{8}, \frac{5}{7}, \frac{2}{9}$ bR; kfn ìkukRed

izkl dhft,

1. D; k 5 , d ìkukRed ifjes l[;k g[
2. i kp v[ks ìkukRed ifjes l[;k, i fyf[k, A

ifjes l[;k, i g[$\frac{63}{5}$ dk v[ak , d ½. kkRed i wkked g[t[;fd bl dk gj , d ìkukRed i wkked g[, d h ifjes l[;k dks ½. kkRed ifjes l[;k dgrs g[vr% $\frac{65}{7}, \frac{63}{8}, \frac{69}{5}$ bR; kfn ½. kkRed ifjes l[;k, i g[

izkl dhft,

1. D; k 88 , d ½. kkRed ifjes l[;k g[
2. i kp v[ks ½. kkRed ifjes l[;k, i fyf[k, A

- D; k $\frac{8}{3}$, d ½. kkRed l[;k g[ge tkursg[fd $\frac{8}{3} = \frac{8 \cdot (-1)}{-3 \cdot (-1)} = \frac{8}{3}$ g[rFkk $\frac{8}{3}$, d ½. kkRed ifjes l[;k g[vr% $\frac{8}{3}$, d ½. kkRed ifjes l[;k g[bl h i d[kj] $\frac{5}{67}, \frac{6}{65}, \frac{2}{69}$ bR; kfn l Hkh ½. kkRed ifjes l[;k, i g[è; ku nhft, fd buoð v[ak ìkukRed g[rFkk gj ½. kkRed g[

- l[;k 0 u rks , d ìkukRed ifjes l[;k g[v[ks u gh , d ½. kkRed ifjes l[;k; kA
- $\frac{63}{65}$ oð ckjs ea D; k dgk tk l drk g[

vki ṇ[kaks fd $\frac{63}{65}$ $\frac{63}{65}$ (61) $\frac{3}{5}$ gā vṛ% $\frac{63}{65}$, d èkukRed ifjes ḷ; k gā bl
 izkj] $\frac{62}{65}$, $\frac{65}{63}$, bR; kfn èkukRed ifjes ḷ; k, i gā



i z, kl dhft,

fuEufyf[kr ea l s dks & l h ḷ; k, i ½.kkRed ifjes ḷ; k, i gā

- (i) $\frac{62}{3}$
- (ii) $\frac{5}{7}$
- (iii) $\frac{3}{65}$
- (iv) 0
- (v) $\frac{6}{11}$
- (vi) $\frac{62}{69}$



9.5 , d ḷ; k j̣kk ij ifjes ḷ; k, i

vki ; g tkursgāfd , d ḷ; k j̣kk ij i wkkelka dksfdl izkj fu: fir fd; k tkrk gā vkb,
 , d h gh , d ḷ; k j̣kk [khpA



0 ọ nkb±vkj ọ ṅṇ/ka dks+ fpÉ l s 0; Dr djrs gā vḳ; ; s èkukRed i wkkel n'kḳrs gā
 0 l s ckb±vkj ọ ṅṇ/ka dks 6 fpÉ l s 0; Dr djrs gā vḳ; ; s ½.kkRed i wkkel n'kḳrs gā
 ḷ; k j̣kk ij fHkukka ọ fu: i .k l s Hkh vki ifjpr gā
 vkb, vc ṇ[ka fd ifjes ḷ; k, i ḷ; k j̣kk ij fdl izkj fu: fir dh tk l drh gā
 vkb, ḷ; k j̣kk ij ḷ; k $\frac{1}{2}$ dks fu: fir dja

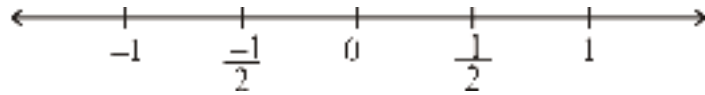
ṭk fd /ukRed i wkkelka dh fLFkr eafd; k x; k Fkk] èkukRed ifjes ḷ; kvka dks 0
 ọ nkb±vkj ṿdr fd; k tk, xk rFkk ½.kkRed ifjes ḷ; kvka dks 0 ọ ckb±vkj ṿdr
 fd; k tk, xkA

0 ọ fdl vkj vki $\frac{1}{2}$ dks ṿdr djaks ½.kkRed ifjes ḷ; k gks ọ dkj. k bl s
 0 ọ ckb±vkj ṿdr fd; k tk, xkA

vki tkursgāfd ḷ; k j̣kk ij i wkkelka dks ṿdr djrs l e;] ṃkj̣kkj i wkkelka dks l eku
 ṿjkyka ij ṿdr fd; k tkrk gā l Fk gh] ḷ; kvka 1 vḳ; & 1 dk ; ñe ḷ; k 0 l s l enjilFk
 gā bl h izkj] 2 vḳ; 62 rFkk 3 vḳ; 63 Hkh l enjilFk gā

bl h izkj] ifjes ḷ; k, i $\frac{1}{2}$ vḳ; $\frac{1}{2}$ Hkh 0 l s l enjilFk gkxhA ge tkursgāfd ifjes
 ḷ; k $\frac{1}{2}$ dksfdl izkj ḷ; k j̣kk ij ṿdr fd; k tkrk gā ; g ml ṅṇij ṿdr fd; k

tkrk gš tks 0 vks 1 ls cjkj njih (Bhd chp ea) ij gš vFkkz-0 vks 1 dh vkekh njih ij gš blfy,] $\frac{1}{2}$ dks 0 vks 01 dh vkekh njih ij vadr fd;k tk, xkA



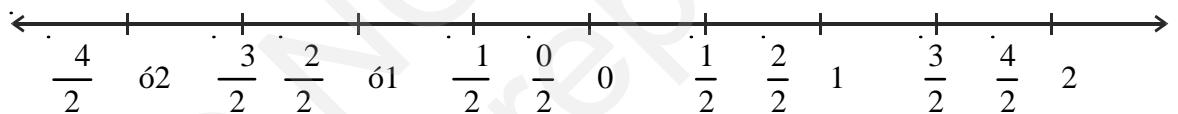
ge tkursgšfd $\frac{3}{2}$ dks lā;k jšk ij fdl izkj vadr fd;k tkrk gš bls 0 oš nkb±

vks 1 vks 2 oš chp ea vkekh njih ij vadr fd;k tkrk gš vkb, vc lā;k jšk ij $\frac{3}{2}$

dks vadr dja ;g 0 oš ckb±vks mruh gh njih ij vadr gsk ftruh njih 0 vks $\frac{3}{2}$ oš chp gš

?Kvrs gq Øe ea $\frac{-1}{2}, \frac{-2}{2} (= -1), \frac{3}{2}, \frac{4}{2} (= 2)$, bR; kfn ikr gš bls ;g inf'kr

gsk gšfd $\frac{3}{2}$ lā;k kvk 1 vks 02 oš chp ea vkekh njih ij fLFkr (;k vadr) gskA



bl h izkj] $\frac{5}{2}$ vks $\frac{7}{2}$ dks lā;k jšk ij vadr dhft, A

bl h izkj] $\frac{1}{3}$ lā;k jšk ij 0 oš ckb±vks 'kū; lsmruh gh njih ij gsk ftruh fd

$\frac{1}{3}$ 'kū; lsnkb±vks gš

vr% tš k fd Åij fd;k x;k gš $\frac{1}{3}$ dks lā;k jšk ij fu: fir fd;k tk ldrk gš , d

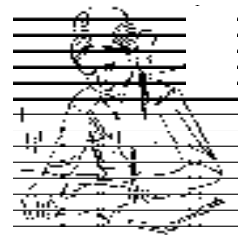
ckj] gea $\frac{1}{3}$ dks lā;k jšk ij fu: fir djuk vk tk, rkš ge $\frac{2}{3}, \frac{4}{3}, \frac{5}{3}, \dots$ bR; kfn

dks lā;k jšk ij fu: fir dj ldrsgš foHkū gjk okyh vū; ifješ lā;k kvk dks Hkh bl h izkj lā;k jšk ij fu: fir fd;k tk ldrk gš

9.6 ekud : i ea ifješ lā;k, j

fuEufyf[kr ifješ lā;k kvk dks nf[k, %

$$\frac{3}{5}, \frac{5}{8}, \frac{2}{7}, \frac{7}{11}$$



bu lHkh ifjes l̄; kvka oð gj èkukRed i wkkel gârFkk vâk vks gjka oð chp ea oðby 1 l koZ xqku [kM (common factor) gâ l kFk gh] ½.kRed fpÉ (&) oðby vâk eagh flFkr gâ , d h ifjes l̄; kvka dks ekud : i (standard form) ea 0; Dr dh xbZ ifjes l̄; k, j dgk tkrk gâ

, d ifjes l̄; k ekud : i ea 0; Dr dh gþZ dgh tkrh g\$; fn ml dk gj èkukRed i wkkel gks rFkk ml oð vâk vks gj ea 1 oð vfrfjDr dkbZ l koZ xqku [kM u gkâ

; fn dkbZ ifjes l̄; k ekud : i ea ugha g\$ rks ml s ml oð ekud : i ea 0; Dr fd; k tk l drk gâ

Lej.k dhft, fd fHkUuka dks muoð U; ure : i ka ea 0; Dr djus oð fy,] geus muoð vâkka vks gjka dks, d gh 'k; s j i wkkel l s Hkxk fn; k Fkka ge bl h fofek dk iz kx ifjes l̄; kvka dks muoð ekud : i ka ea 0; Dr djus ea djæâ

mngj.k 1 $\frac{645}{30}$ dks ekud : i ea 0; Dr dhft, A

gy gea i klr g\$ % $\frac{645}{30} = \frac{645 \div 3}{30 \div 3} = \frac{615}{10} = \frac{615 \div 5}{10 \div 5} = \frac{63}{2}$

geanks kj Hkxk nsuk i MKA igyh kj 3 l s vks fi Oj 5 l A bl s fu Eufyf [kr iz kj l s Hkxk fd; k tk l drk Fkk %

$$\frac{645}{30} = \frac{645 \div 15}{30 \div 15} = \frac{63}{2}$$

bl mngj.k ea nf [k, fd 15] l̄; kvka 45 vks 30 dk e-l- gâ

bl iz kj] , d ifjes l̄; k dks ekud : i ea 0; Dr djus oð fy,] ge ml oð vâk vks gj dks muoð e-l- l } ½.k fpÉ ij fcuk dkbZ è; ku fn, (; fn dkbZ gk\$) Hkxk nrs gâ (½.k fpÉ ij è; ku uk nsuk dk dkj.k ge vxyh d {kvka ea i < k\$) ; fn gj ea ½.kRed fpÉ g\$ rks ^&e-l- * l s Hkxk nhft, A

mngj.k 2 ekud : i ea cnfy, %

(i) $\frac{36}{624}$ (ii) $\frac{63}{615}$

gy

(i) 36 vks 24 dk e-l- 12 gâ vr% ekud : i vâk vks gj dks 612 l s Hkxk nsuk ij i klr gk\$ kA

bl iz kj] $\frac{36}{624} = \frac{36 \div (612)}{624 \div (612)} = \frac{3}{2}$

(ii) 3 vks 15 dk e-l- 3 gâ

bl iz kj] $\frac{63}{615} = \frac{63 \div (63)}{615 \div (63)} = \frac{1}{5}$





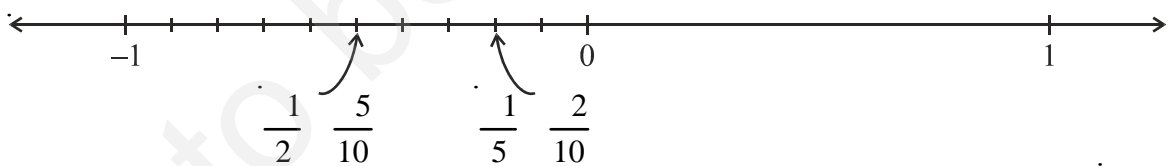
i z kl dhft,

ekud : i Kkr dhft, (i) $\frac{618}{45}$ (ii) $\frac{612}{18}$

9.7 ifjes I d; kvka dh rnyuk

ge ; g tkurs gdf d nks iwkkelka ; k nks fHKUka dh rnyuk fdl izdkj dh tkrh gSrFkk ; g Hkh fd buedk dks cMk gS vkj dks NkK/A vkb, vc nqkaf d nks ifjes I d; kvka dh rnyuk fdl izdkj dh tk l drh g

- $\frac{2}{3}$ vkj $\frac{5}{7}$ tsh nks ekukRed ifjes I d; kvka dh rnyuk Bhd ml h izdkj dh tk l drh gS tsk fd ge fHKUka dh fLFkr o f, igysi <+pp g
- ejh usnks $\frac{1}{2}$ kRed ifjes I d; kvka - $\frac{1}{2}$ vkj $\frac{1}{5}$ dh rnyuk I d; k jk dk izkx djrs gq dhA ml s Kkr Fkk fd nks iwkkelka ea og iwkkel cMk Fkk tks n j s iwkkel o nkb vkj fLFkr FkA
mngj. kFk I d; k jk ij iwkkel 5 iwkkel 2 o nkb vkj fLFkr gSrFkk $5 > 2$ g I d; k jk ij iwkkel $\mu 2$ iwkkel $\mu 5$ o nkb vkj fLFkr gSrFkk $62 > 65$ g
ml us bl fofek dk izkx ifjes I d; kvka o f, Hkh fd; kA ml sirk Fkk fd I d; k jk ij ifjes I d; kvka dks fdl izdkj vdr (fu: fir) fd; k tkrk g ml us - $\frac{1}{2}$ vkj $\frac{1}{5}$ dks uhps n'kz, vuq kj vdr fd; k%



D; k ml us nksa cng l gh izdkj l svdr fd, g ml us d s vkj D; ka - $\frac{1}{2}$ dks $\frac{5}{10}$ rFkk $\frac{1}{5}$ dks $\frac{2}{10}$ ea cnyk\ ml s Kkr gqk fd ifjes I d; k $\frac{1}{5}$ ifjes I d; k - $\frac{1}{2}$ o nkb vkj fLFkr g bl izdkj] $\frac{1}{5} > -\frac{1}{2}$ gS ; k - $\frac{1}{2} < \frac{1}{5}$ g

D; k vki $\frac{3}{4}$ vkj $\frac{2}{3}$ dh rFkk $\frac{1}{3}$ vkj $\frac{1}{5}$ dh rnyuk dj l drs g

ge fHKUka o viusvè ; ; u l s ; g tkurs gdf $\frac{1}{5} < \frac{1}{2}$ g I kFk gh] ejh us - $\frac{1}{2}$ vkj $\frac{1}{5}$ o f, D; k ikr fd; k D; k ; g bl dk Bhd foijhr ugha FkA

vki n[ksr gdf $\frac{1}{2} > \frac{1}{5}$ g[ijarq- $\frac{1}{2} < \frac{1}{5}$ g[

D;k vki $\frac{3}{4}$ v[$\frac{2}{3}$ rFk $\frac{1}{2}$ v[$\frac{1}{5}$ o[fy, Hkh bl h izkj dk ifj.kke n[ksr g[

ejh dks ;kn vkrk g[sfd ml us iwkk[ka ea i<k Fk fd $4 > 3$ g[ijarq $4 < 63$ g[$5 > 2$ g[ijarq $65 < 62$ br; kfnA

- $\frac{1}{2}$.kkRed ifjes I[;kvka o[;[ka dh fLFkr Hkh Bhd bl h izkj g[nks $\frac{1}{2}$.kkRed ifjes I[;kvka dh ryuk djus o[fy,] ge mudh ryuk muo[fp[ka dks NkM[rsgq djrs g[v[ckn ea vl fedk (inequality) o[fp[dks mYVk dj (cny) nrs g[

mnkgj.kkF[$\frac{7}{5}$ v[$\frac{5}{3}$, dh ryuk djus o[fy,] igysge $\frac{7}{5}$ v[$\frac{5}{3}$ dh ryuk djrs g[

ge $\frac{7}{5} < \frac{5}{3}$ ikr gkrk g[v[bl s ge fu"d"z fudkyrs g[fd $\frac{67}{5} > \frac{65}{3}$ g[

,d s ikp ;[e v[yft, v[fiOj mudh ryuk dhft, A

dk[cMk g[s % $\frac{3}{8}$;k $\frac{2}{7}$?; $\frac{4}{3}$;k $\frac{3}{2}$?

- ,d $\frac{1}{2}$.kkRed v[[kRed ifjes I[;k dh ryuk I[;k j[kk ij] ,d $\frac{1}{2}$.kkRed ifjes I[;k 'k[; o[ckb±v[fLFkr gkrh g[rFk ,d [kRed ifjes I[;k 'k[; o[nkb±v[fLFkr gkrh g[vr% ,d $\frac{1}{2}$.kkRed ifjes I[;k In[,d [kRed ifjes I[;k Is Nk[h gkrh g[

bl izkj o[$\frac{2}{7} < \frac{1}{2}$ g[

- ifjes I[;kvka $\frac{3}{5}$ v[$\frac{2}{7}$ dh ryuk djus o[fy, igys mlga ekud : i ea cnfy, v[fiOj mudh ryuk dhft, A

mnkgj.k 3 D;k $\frac{4}{9}$ v[$\frac{16}{36}$, d gh ifjes I[;k dks fu: fir djrs g[

gy gk[D;k d $\frac{4}{69}$ $\frac{4}{9}$ ($\frac{4}{4}$) $\frac{16}{36}$;k $\frac{16}{36}$ $\frac{16}{36}$ $\frac{4}{4}$ $\frac{4}{9}$ g[

9.8 nks ifjes I[;kvka o[chp ea ifjes I[;k,j

j[kek 3 v[10 o[chp ea iwz I[;k,j fxuuk pkg rh FkA ml dks vi uh fi Nyh d[kkvka Is ;g Kkr Fk fd 3 v[10 o[chp ea Bhd 6 iwz I[;k,j gk[bl h izkj] og μ_3 v[3 o[chp iwkk[ka dh I[;k Hkh Kkr djuk pkg rh FkA μ_3 v[3 o[chp ea iwkk[ka μ_2] μ_1] 0] 1 v[2 g[bl izkj] μ_3 v[3 o[chp Bhd 5 iwkk[ka g[

D; k μ_3 vks μ_2 oð chp dkbz i wkkel gð ugha μ_3 vks μ_2 oð chp dkbz i wkkel ugha gð nks Øekxr i wkkelka oð chp i wkkelka dh l $\frac{1}{5}$; k 0 gkrh gð

bl izdkj ge iklr djrs gð fd nks i wkkelka oð chp ea i wkkelka dh l $\frac{1}{5}$; k l hfer ifjer ; k (finite) gkrh gð

D; k ; g ifjes l $\frac{1}{5}$; kvka dh flfkr ea Hkh gksk\

jskek us nks ifjes l $\frac{1}{5}$; k, i $\frac{63}{5}$ and $\frac{61}{3}$ yha

ml us blga leku gj okyh ifjes l $\frac{1}{5}$; kvka ea cny fy; ka

vr% $\frac{63}{5}$ $\frac{69}{15}$ vks l $\frac{61}{3}$ $\frac{65}{15}$ gð

gea iklr gð fd $\frac{69}{15}$ $\frac{68}{15}$ $\frac{67}{15}$ $\frac{66}{15}$ $\frac{65}{15}$ gð ; k $\frac{63}{5}$ $\frac{68}{15}$ $\frac{67}{15}$ $\frac{66}{15}$ $\frac{61}{3}$ gð

bl izdkj og $\frac{3}{5}$ vks $\frac{1}{3}$ oð chp ea ifjes l $\frac{1}{5}$; k, i $\frac{68}{15}$, $\frac{67}{15}$, $\frac{66}{15}$ Kkr dj l dhA

D; k $\frac{-3}{5}$ vks $\frac{-1}{3}$ oð chp ea oðoy ifjes l $\frac{1}{5}$; k, i $\frac{68}{15}$, $\frac{67}{15}$, $\frac{66}{15}$ gh gð

gea iklr gð fd $\frac{63}{5}$ $\frac{618}{30}$ vks $\frac{68}{15}$ $\frac{616}{30}$ gð

l fkr gh $\frac{618}{30}$ $\frac{617}{30}$ $\frac{616}{30}$ gð vfkkr $\frac{63}{5}$ $\frac{617}{30}$ $\frac{68}{15}$ gð

vr% $\frac{63}{5}$ $\frac{617}{30}$ $\frac{68}{15}$ $\frac{67}{15}$ $\frac{66}{15}$ $\frac{61}{3}$ gð

bl izdkj $\frac{-1}{3}$ vks $\frac{-3}{5}$ oð chp ge , d vks ifjes l $\frac{1}{5}$; k Kkr djus ea li ðy gks x, A

bl fofek dk izkx djoð vki nks ifjes l $\frac{1}{5}$; kvka oð chp ea ftruh pkgá mruh ifjes l $\frac{1}{5}$; k, i Kkr dj l drs gð

mnkgj . kkrkz $\frac{63}{5}$ $\frac{63}{5}$ $\frac{30}{30}$ $\frac{690}{150}$ vks $\frac{61}{3}$ $\frac{61}{3}$ $\frac{50}{50}$ $\frac{650}{150}$ gð

gea $\frac{-90}{150}$ vks $\frac{-50}{150}$ oð chp ea vfkkr $\frac{-3}{5}$ vks $\frac{-1}{3}$ oð chp ea 39



izkl dhft,

$\frac{-5}{7}$ vks $\frac{-3}{8}$ oð chp ea
ikp ifjes l $\frac{1}{5}$; k, i Kkr
dhft, A

ifjes l $\frac{1}{5}$; k, i $\frac{89}{150}$, $\frac{88}{150}$, $\frac{87}{150}$, ..., $\frac{51}{150}$ iklr djrs gð

vki ; g Kkr djrs fd ; g lph dhkh leklr ugha gkskA

D; k vki $\frac{-5}{3}$ vks $\frac{-8}{7}$ oð chp ea ikp ifjes l $\frac{1}{5}$; k, i fy [k l drs gð

ge nks ifjes l $\frac{1}{5}$; kvka oð chp ea vl hfer (; k vijfer : i lsvud)
ifjes l $\frac{1}{5}$; k, i Kkr dj l drs gð



mńkgj.k 4 ó2 vks ó1 ođ chp earhu ifjes Iđ; k, j fyf[k, A

gy vkb, ó1 vks ó2 dks gj 5 okyh ifjes Iđ; kvka ođ : i eafy[kA

gea i klr gsfđ ó1 = $\frac{5}{5}$ vks ó2 = $\frac{10}{5}$ gA

vr% $\frac{ó10}{5}, \frac{ó9}{5}, \frac{ó8}{5}, \frac{ó7}{5}, \frac{ó6}{5}, \frac{ó5}{5}$ gA ; k ó2 $\frac{ó9}{5}, \frac{ó8}{5}, \frac{ó7}{5}, \frac{ó6}{5}$ ó1 gA

ó2 vks ó1 ođ chp rhu ifjes Iđ; k, j $\frac{9}{5}, \frac{8}{5}, \frac{7}{5}$ gkxhA

(vki $\frac{ó9}{5}, \frac{ó8}{5}, \frac{ó7}{5}$ vks $\frac{-6}{5}$ ea ls dkbZ lh Hkh rhu ifjes Iđ; k, j ys l drs gA)

mńkgj.k 5 fuEufyf[kr ifr: i (Pattern) eA pkj vks Iđ; k, j fyf[k, %

$$\frac{-1}{3}, \frac{-2}{6}, \frac{-3}{9}, \frac{-4}{12}, \dots$$

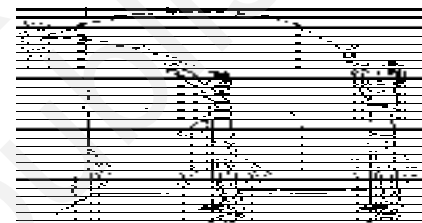
gy gea i klr gsf%

$$\frac{2}{6}, \frac{1}{3}, \frac{2}{2}, \frac{3}{9}, \frac{1}{3}, \frac{3}{3}, \frac{4}{12}, \frac{1}{3}, \frac{4}{4}$$

vFlók $\frac{ó1}{3}, \frac{1}{1}, \frac{1}{3}, \frac{ó1}{3}, \frac{2}{2}, \frac{ó2}{6}, \frac{ó1}{3}, \frac{3}{3}, \frac{ó3}{9}, \frac{ó1}{3}, \frac{4}{4}, \frac{ó4}{12}$ gA

bl izdkj] bu Iđ; kvka ea ge , d ifr: i ns[krs gA

vll; Iđ; k, j $\frac{1}{3}, \frac{5}{5}, \frac{5}{15}, \frac{1}{3}, \frac{6}{6}, \frac{6}{18}, \frac{1}{3}, \frac{7}{7}, \frac{7}{21}$ gkxhA



izukoyh 9.1

1. fuEufyf[kr ifjes Iđ; kvka ođ chp ea ikp ifjes Iđ; k, j fyf[k, %

(i) ó1 vks 0 (ii) ó2 vks ó1 (iii) $\frac{-4}{5}$ vks $\frac{-2}{3}$ (iv) $-\frac{1}{2}$ vks $\frac{2}{3}$

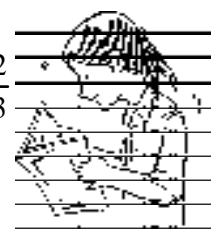
2. fuEufyf[kr ifr: i ka ea ls iR; d ea pkj vks ifjes Iđ; k, j fyf[k, %

(i) $\frac{3}{5}, \frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \dots$ (ii) $\frac{1}{4}, \frac{2}{8}, \frac{3}{12}, \dots$

(iii) $\frac{1}{6}, \frac{2}{12}, \frac{3}{18}, \frac{4}{24}, \dots$ (iv) $\frac{2}{3}, \frac{2}{3}, \frac{4}{6}, \frac{6}{9}, \dots$

3. fuEufyf[kr ođ lerY; pkj ifjes Iđ; k, j fyf[k, %

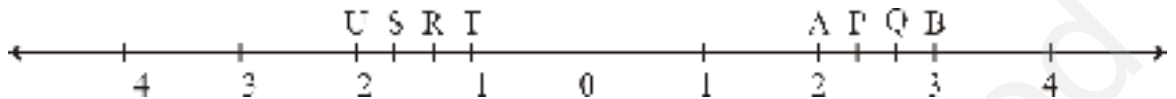
(i) $\frac{2}{7}$ (ii) $\frac{5}{3}$ (iii) $\frac{4}{9}$



4. , d l[; k j[kk [k[mp, v[ks ml ij fuEufyf[kr ijjes l[; kvka dks fu: fir dhft, %

(i) $\frac{3}{4}$ (ii) $\frac{5}{8}$ (iii) $\frac{7}{4}$ (iv) $\frac{7}{8}$

5. , d l[; k j[kk ij [cnq P, Q, R, S, T, U, A v[ks B bl idkj g[fd $TR = RS = SU$ rFkk $AP = PQ = QB$ g[P, Q, R v[ks S lsfu: fir ijjes l[; kvka dks fyf[k, A



6. fuEufyf[kr ea l s dks l s ; e , d gh ijjes l[; k dks fu: fir djrs g[

(i) $\frac{7}{21}$ v[ks $\frac{3}{9}$ (ii) $\frac{16}{20}$ v[ks $\frac{20}{25}$ (iii) $\frac{2}{3}$ v[ks $\frac{2}{3}$

(iv) $\frac{3}{5}$ v[ks $\frac{12}{20}$ (v) $\frac{8}{5}$ v[ks $\frac{24}{15}$ (vi) $\frac{1}{3}$ v[ks $\frac{1}{9}$

(vii) $\frac{5}{9}$ v[ks $\frac{5}{9}$

7. fuEufyf[kr ijjes l[; kvka dks muo[l jyre : i ea fyf[k, %

(i) $\frac{8}{6}$ (ii) $\frac{25}{45}$ (iii) $\frac{44}{72}$ (iv) $\frac{8}{10}$

8. l[d[ka >, <, v[ks = ea l s l gh l[d[p[dj fjdR LFkkuka dks Hkfj, %

(i) $\frac{5}{7}$ $\frac{2}{3}$ (ii) $\frac{4}{5}$ $\frac{5}{7}$ (iii) $\frac{7}{8}$ $\frac{14}{16}$

(iv) $\frac{8}{5}$ $\frac{7}{4}$ (v) $\frac{1}{3}$ $\frac{1}{4}$ (vi) $\frac{5}{11}$ $\frac{5}{11}$

(vii) 0 $\frac{7}{6}$

9. fuEufyf[kr ea i R; d[ea l s dks l h l[; k cMh g[

(i) $\frac{2}{3}, \frac{5}{2}$ (ii) $\frac{5}{6}, \frac{4}{3}$ (iii) $\frac{3}{4}, \frac{2}{3}$

(iv) $\frac{1}{4}, \frac{1}{4}$ (v) $3\frac{2}{7}, 3\frac{4}{5}$

10. fuEufyf[kr ijjes l[; kvka dks vkjkg[Oe ea fyf[k, %

(i) $\frac{3}{5}, \frac{2}{5}, \frac{1}{5}$ (ii) $\frac{6}{3}, \frac{2}{9}, \frac{4}{3}$ (iii) $\frac{3}{7}, \frac{3}{2}, \frac{3}{4}$

9.9 ifjes l[;kvkaij l[Ø;k,i

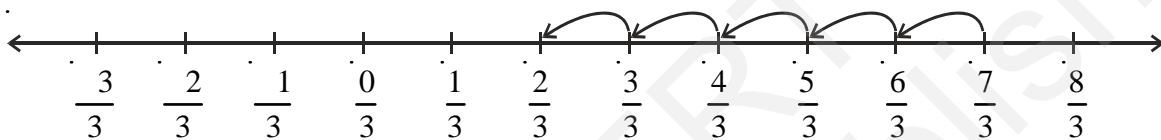
vki tkursgãfd iwkkelka rFkk fHKUka dksfdl izdkj tkMl[?kvk;k] xqkk vkS Hkkx fd;k tkrk gã vkb, bu vkekjkHkr l[Ø;kvka dk ifjes l[;kvka ij vè;;u dja

9.9.1 ;ks

- vkb, leku gj okyh nks ifjes l[;kvk] eku yHft, $\frac{7}{3}$ vkS $\frac{5}{3}$] dks tkMl

ge $\frac{7}{3} - \frac{5}{3}$ Kkr djrs gã

l[;k j[kk ij] gea ikr gsrk gS %



nks Øekr cnqka oØ chp dh njih $\frac{1}{3}$ gã vr% $\frac{7}{3}$ ea $\frac{5}{3}$ tkMl us dk vFkZ gSfd $\frac{7}{3}$ oØ

ckb±vkj 5 dne pyã ge dgk; igprsgã ge $\frac{2}{3}$ ij igprsgã vr% $\frac{7}{3} - \frac{5}{3} = \frac{2}{3}$ gã

vkb, bl dks bl izdkj djus dk izRu dja %

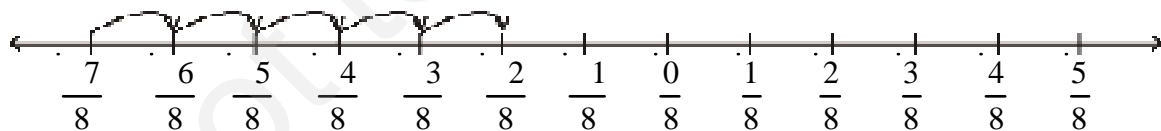
$$\frac{7}{3} - \frac{5}{3} = \frac{7-5}{3} = \frac{2}{3}$$

gea ogh mUkj ikr gsrk gã

$\frac{6}{5} - \frac{2}{5}, \frac{3}{7} - \frac{5}{7}$ dks mi jkDr nksika fofèk; ka l s Kkr

dhft, vkS tko dja fd D;k nksika mUkj leku gã

bl h izdkj] $\frac{7}{8} - \frac{5}{8}$ fuEufyf[kr gsrk %



gea D;k ikr gsrk gã

l kFk gh] $\frac{7}{8} - \frac{5}{8} = \frac{7-5}{8}$? D;k nksika eku leku gã

izkl dhft,

$$\frac{13}{7} - \frac{6}{7} \text{ rFkk } \frac{19}{5} - \frac{7}{5} \text{ Kkr dhft, \%}$$



bl izdkj] ge n[krsgdfd l eku gj okyh ifjes l[; kvka dks tkM+rsg] ge] gj dks ogh j[krsgq] v[akka dks tkM+nrs gdf

bl izdkj] $\frac{11}{5} \frac{7}{5} \frac{11}{5} \frac{7}{5} \frac{4}{5}$ gdf

- ge vvx&vyx gjkaokyh nks ifjes l[; kvka dksfdl izdkj tkM+rsg fHKUka dh rjg] ge igys bu gjka dk y-l- Kkr djrs gdf fiOj ge ,d h l erY; ifjes l[; k, i Kkr djrs gdf ftuoel gj ;g y-l- gdf bloel ckn ge bu nksuka ifjes l[; kvka dks tkM+rsg gdf

mngkj.kkfk] vkb, $\frac{7}{5}$ and $\frac{2}{3}$ dks tkM+rsg 5 vks 3 dk y-l- 15 gdf

vr% $\frac{7}{5} \frac{21}{15}$ vks $\frac{2}{3} \frac{10}{15}$ gdf

bl izdkj $\frac{7}{5} \frac{2}{3} \frac{21}{15} \frac{10}{15} \frac{31}{15}$ gdf

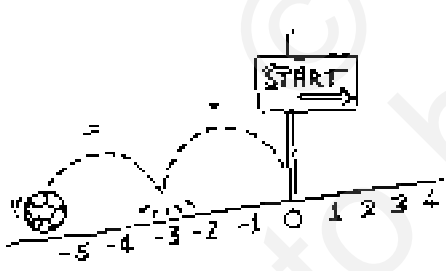
; k[; ifryke %

$\frac{4}{7} \frac{4}{7}$ fdl oel cjkj gksk\

$\frac{4}{7} \frac{4}{7} \frac{4}{7} \frac{4}{7}$ 0 gdf l kfk gh] $\frac{4}{7} \frac{4}{7}$ 0 gdf

bl h izdkj] $\frac{2}{3} \frac{2}{3}$ 0 $\frac{2}{3} \frac{2}{3}$ gdf

iz kl dhft,	
Kkr dhft, %	
(i)	$\frac{3}{7} \frac{2}{3}$
(ii)	$\frac{5}{6} \frac{3}{11}$



vk dks n gskfd i vklep 2 dk ; k[; ifryke (additive inverse) 2 gdf rFk 2] i vklep 6 2 dk ; k[; ifryke gksk gdf

ifjes l[; kvka oel fy,] ge dgrs gdf $\frac{4}{7}$ ifjes l[; k $\frac{4}{7}$

dk ; k[; ifryke gsrFk $\frac{4}{7}$ ifjes l[; k $\frac{4}{7}$ dk ; k[; ifryke gdf

bl h izdkj] $\frac{2}{3}$ ifjes l[; k $\frac{2}{3}$ dk ; k[; ifryke gsrFk $\frac{2}{3}$ ifjes

l[; k $\frac{2}{3}$ dk ; k[; ifryke gdf

mngkj.k 6 Iriky fdl h LFkku Pls i wZ fn'kk ea $\frac{2}{3}$ km pyrK gsvks fiOj ogk l si f'pe fn'kk ea $1\frac{5}{7}$ km pyrK gdf vc og Pls dgkj fLFkr gksk\

iz kl dhft,	
	$\frac{-3}{9}, \frac{-9}{11}$ vks $\frac{5}{7}$ oel
	; k[; ifryke D; k gdf

gy vkb, i wZ fn'kk ea pyh xbz njh dks ekukRed fpe l s 0; Dr djA bl fy,] if'pe fn'kk ea pyh xbz njh dks $\frac{1}{2}$.kkRed fpe l s 0; Dr fd; k tk, xkA

bl izdkj] cnqP Islriky dh njih (km ea) gksh %

$$\frac{2}{3} \cdot 1\frac{5}{7} = \frac{2}{3} \cdot \frac{12}{7} = \frac{2 \cdot 7}{3 \cdot 7} = \frac{612}{7 \cdot 3}$$

$$= \frac{14}{21} \cdot \frac{36}{21} = 1\frac{1}{21}$$



D; kfid ; g 1/2. kRed gš blfy, Iriky P Isif'pe dh vksj 1 1/21 km dh njih ij gš

9.9.2 0; odyu (?kVkuk)

I fork us nks ifjes Iā; kvka 5/7 vksj 3/8 dk varj bl fofek Is i ktr fd; k %

$$\frac{5}{7} - \frac{3}{8} = \frac{40}{56} - \frac{21}{56} = \frac{19}{56}$$

i Qjhnk tkurh Fkh fd nks iwkkkka, vksj b oš fy,] a ó b = a + (ó b) fy [kk tk I drk gš

ml us, d k ifjes Iā; kvka oš fy, Hkh fd; k vksj Kkr fd; k fd 5/7 - 3/8 = 5/7 + (-3)/8 = 19/56 gš

nksika us, d gh (leku) varj i ktr fd; kA

nksika fofek; ka I š 7/8, 5/9, 3/11, 8/7 Kkr djus dk iz Ru dhft, A D; k vki dks leku mškj

i ktr gkrs gš

vr% ge dgrs gš fd nks ifjes Iā; kvka dks ?kVkrš (0; odyu djrs) le;] ?kVk, tkus okyh Iā; k oš ; kš; ifryke dks vl; ifjes Iā; k ea tkM+nšuk pkfg, A

bl izdkj, 1 2/3 - 2 4/5 = 5/3 - 14/5 = 5/3 + (-14)/5 dk ; kš; ifryke

$$= \frac{5}{3} + \frac{(-14)}{5} = \frac{17}{15} = 1\frac{2}{15} \text{ gš}$$

2/7 - 5/6 D; k gkšk\ 2/7 - 5/6 = 2/7 - 5/6 dk ; kš; ifryke

$$= \frac{2}{7} - \frac{5}{6} = \frac{4}{42} - \frac{47}{42} = -\frac{43}{42}$$

iz kl dhft,

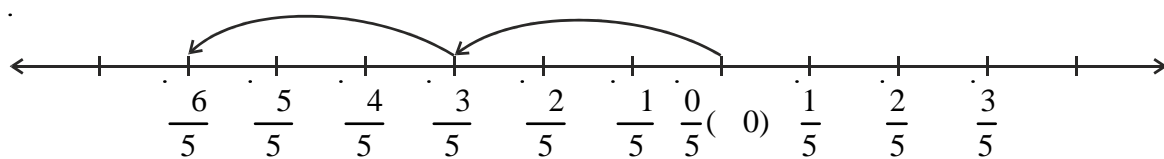
Kkr dhft,

(i) 7/9 - 2/5 (ii) 2 1/5 - 1/3

9.9.3 xqku

vkb, ifjes Iā; k 3/5 dks 2 Is xqkk djš vFkz-ge 3/5 × 2 Kkr djš

Iā; k jš [kk ij bl dk vFkz gkšk 3/5 fd dkb± vksj nks dne pyuka



ge dgk; igprsg& ge $\frac{6}{5}$ ij igprsg& vkb, ge bl dks fHkUka okyh fofek l s Kkr dja

$$\frac{3}{5} \times 2 = \frac{3 \times 2}{5} = \frac{6}{5}$$

ge ml h ifjes l d; k ij igp tkrs g&

nkska fofek; ka dk iz ks djrs gq] $\frac{4}{7} \times 3$ vks] $\frac{6}{5} \times 4$, dks Kkr dhft, A vki D; k n[krs g&

vr% ge Kkr djrs g&fd, d ifjes l d; k dks, d ekRed iwkkel l s xqkk djus ij ge vak dks ml iwkkel l s xqkk dj nrs g& rFkk gj dks ogh j[krs g& vkb, vc, d ifjes l d; k dks, d $\frac{1}{2}$ kRed iwkkel l s xqkk dja

$$\frac{2}{9} \times (5) = \frac{2 \times (5)}{9} = \frac{10}{9}$$

iz kl dhft,
fuEufyf[kr xqkui Oy D; k gksk

(i) $\frac{-3}{5} \cdot 7$ (ii) $\frac{-6}{5} \cdot (-2)$

; kn jf[k, fd 65 dks $\frac{5}{1}$ fy[kk tk l drk g&

vr% $\frac{2}{9} \times \frac{5}{1} = \frac{10}{9} = \frac{2 \times 5}{9 \times 1}$ g&

bl h izkj] $\frac{3}{11} \times (-2) = \frac{3 \times (-2)}{11 \times 1} = \frac{6}{11}$ g&

mijkDr izk. kka o& vk&kkj ij ge Kkr djrs g&fd $\frac{3}{8} \cdot \frac{5}{7} = \frac{3 \cdot 5}{8 \cdot 7} = \frac{15}{56}$ g&


vr% t s k fd geus fHkUka dh fLFkr eafd; k Fkk] ge nks ifjes l d; k; kvka dks fuEufyf[kr fofek l s xqkk djrs g& %

iz kl dhft,

Kkr dhft, %

(i) $\frac{63}{4} \cdot \frac{1}{7}$

(ii) $\frac{2}{3} \cdot \frac{65}{9}$



pj.k 1 % nkska ifjes l d; k; kvka o& vakka dk xqkk dhft, A

pj.k 2 % nkska ifjes l d; k; kvka o& gjka dk xqkk dhft, A

pj.k 3 % xqkui Oy dks $\frac{\text{pj.k 1 ea ikr ifj.kte}}{\text{pj.k 2 ea ikr ifj.kte}}$ o& : i ea fyf[k, A

bl izkj] $\frac{3}{5} \cdot \frac{2}{7} = \frac{3 \cdot 2}{5 \cdot 7} = \frac{6}{35}$ g&

l kFk gh $\frac{-5}{8} \cdot \frac{-9}{7} = \frac{(-5) \cdot (-9)}{8 \cdot 7} = \frac{45}{56}$ g&

9.9.4 foHktu

fHkUka o& 0; B&eka (reciprocals) o& ckjs ea ge igys i <+pp& g& $\frac{2}{7}$ dk 0; B&e D; k g&

; g $\frac{7}{2}$ g& ge bl vo&kkj.kk dks ifjes l d; k; kvka o& 0; B&eka o& fy, Hkh ykxw djrs g&

bl izkj] $\frac{2}{7}$ dk 0; B&e $\frac{7}{2}$] vFkkZ- $\frac{7}{2}$ gksk rFkk $\frac{3}{5}$ dk 0; B&e $\frac{5}{3}$ gkskA

ifjes lā; k dk ml ds 0; Øe l s xqkui Oy
fdlh lā; k dk ml o 0; Øe l s xqkui Oy l n 1 gk r k gā

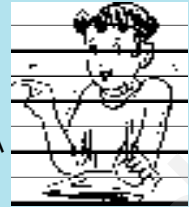
$$\begin{aligned} \text{mngj. kfkz} &= \frac{4}{9} \times \left(\frac{4}{9} \text{ dk } 0; \text{ Øe} \right) \\ &= \frac{64}{9} \frac{69}{4} \text{ 1 gā} \end{aligned}$$

$$\text{bl h izkj} \quad \frac{66}{13} \times \frac{613}{6} = 1 \text{ gā}$$

dñ vks mngj. k ydj] bl i k. k dh i V dhft, A

izkl dhft,

$$\begin{aligned} &\frac{-6}{11}, \frac{-8}{5} \text{ o 0} \\ &0; \text{ Øe } D; k \text{ gk r k s} \end{aligned}$$



l fork us, d ifjes lā; k $\frac{4}{9}$ dks, d vU; ifjes lā; k $\frac{5}{7}$ l s bl izkj foHkfr fd; k
(Hkx fn; k) %

$$\frac{4}{9} \frac{5}{7} \frac{4}{9} \frac{7}{5} \frac{28}{45}$$

ml us fHkka dh rjg gh 0; Øe dh voëkj. k dk iz, ks fd; kA

vfi r us igys $\frac{4}{9}$ dks $\frac{5}{7}$ l s Hkx fn; k vks $\frac{28}{45}$ iklr fd; kA



var e] ml us dgk fd $\frac{4}{9} \frac{5}{7} \frac{28}{45}$ gā ml us, d k fdl izkj iklr fd; kA

ml us $\frac{1}{2}$. kRed fpÉ dks NkM r s gq] mUga fHkka dh rjg foHkfr fd; k vks ckn ea iklr
ifj. ke o 0 l kfk $\frac{1}{2}$. kRed fpÉ yxk fn; kA

nkska us, d gh eku $\frac{28}{45}$ iklr fd; kA $\frac{2}{3}$ dks $\frac{5}{7}$ l snkskafofek; ka } kjk Hkx n d j n f [k,
fd D; k vki, d gh (leku) mUkj iklr djrs gā

nj k l s; g i z g k g f d, d ifjes lā; k dks fdl h vU; ifjes lā; k l s
Hkx n s o 0 fy,] ge ml ifjes lā; k dks vU; ifjes lā; k o 0; Øe l s xqk dj
nrs gā

$$\text{bl izkj] } \frac{6}{-5}, \frac{-2}{3} = \frac{6}{65} \frac{2}{3} \text{ dk } 0; \text{ Øe } \frac{6}{5} \frac{3}{2} \frac{18}{10} \text{ gā}$$

izkl dhft,

Kkr dhft, % (i) $\frac{2}{3} \frac{7}{8}$ (ii) $\frac{66}{7} \frac{5}{7}$



izukoyh 9.2



1. ;ks Kkr dhft, %

$$(i) \frac{5}{4} \quad \frac{11}{4}$$

$$(ii) \frac{5}{3} \quad \frac{3}{5}$$

$$(iii) \frac{9}{10} \quad \frac{22}{15}$$

$$(iv) \frac{3}{11} \quad \frac{5}{9}$$

$$(v) \frac{8}{19} \quad \frac{2}{57}$$

$$(vi) \frac{2}{3} \quad 0$$

$$(vii) 2\frac{1}{3} \quad 4\frac{3}{5}$$

2. Kkr dhft, %

$$(i) \frac{7}{24} \quad \frac{17}{36}$$

$$(ii) \frac{5}{63} \quad \frac{6}{21}$$

$$(iii) \frac{6}{13} \quad \frac{7}{15}$$

$$(iv) \frac{3}{8} \quad \frac{7}{11}$$

$$(v) 2\frac{1}{9} \quad 6$$

3. xqkui Qy Kkr dhft, %

$$(i) \frac{9}{2} \quad \frac{7}{4}$$

$$(ii) \frac{3}{10} \quad 9$$

$$(iii) \frac{6}{5} \quad \frac{9}{11}$$

$$(iv) \frac{3}{7} \quad \frac{2}{5}$$

$$(v) \frac{3}{11} \quad \frac{2}{5}$$

$$(vi) \frac{3}{5} \quad \frac{5}{3}$$

4. fuEufyf[kr oø eku Kkr dhft, %

$$(i) (-4) \quad \frac{2}{3}$$

$$(ii) \frac{3}{5} \quad 2$$

$$(iii) \frac{-4}{5}, (-3)$$

$$(iv) \frac{1}{8} \quad \frac{3}{4}$$

$$(v) \frac{2}{13} \quad \frac{1}{7}$$

$$(vi) \frac{7}{12} \quad \frac{2}{13}$$

$$(vii) \frac{3}{13} \quad \frac{4}{65}$$

geus D; k ppkZ dh \

1. ,d I; k ftIs $\frac{p}{q}$ o0 : i ea0; Dr fd; k tk lo0] tgi p vls q iwkked gsrFkk q 0
 gS ifjes I; k dgykrh gA I; k, i $\frac{2}{7}, \frac{3}{8}, 3$ bR; kfn ifjes I; k, i gA
2. I Hkh iwkked vls fHKUu ifjes I; k, i gA
3. ;fn fdlh ifjes I; k o0 vAk vls gj dks ,d gh 'k; sj iwkked Is xqkk fd; k tk, ; k Hkx fn; k tk,] rks gea ,d ifjes I; k ikr gsrh gS tks nh gPZ ifjes I; k o0 lery; ifjes I; k dgh tkrh gA mngj.kkFk] $\frac{3}{7} \frac{3}{7} \frac{2}{2} \frac{6}{14}$ gA
 vr% ge dgrs gdf $\frac{6}{14}$ I; k $\frac{3}{7}$ dk ,d lery; : i gA l kFk gh] è; ku nhft, fd $\frac{6}{14} \frac{6}{14} \frac{2}{2} \frac{3}{7}$ gA
4. ifjes I; k; kvka dks ekukRed vls $\frac{1}{2}$.kkRed ifjes I; k; kvka o0 : i ea oxhN r fd; k tkrk gA tc vAk vls gj nksaka gh ; k rks ekukRed iwkked gka ; k $\frac{1}{2}$.kkRed iwkked gk] rks og ifjes I; k ekukRed ifjes I; k dgykrh gA tc vAk ; k gj ea Is ,d $\frac{1}{2}$.kkRed iwkked gk] rks og ifjes I; k ,d $\frac{1}{2}$.kkRed ifjes I; k dgykrh gA mngj.kkFk] $\frac{3}{8}$,d ekukRed ifjes I; k gsrFkk $\frac{8}{9}$,d $\frac{1}{2}$.kkRed ifjes I; k gA
5. I; k 0 u rks ,d ekukRed ifjes I; k gS vls u gh $\frac{1}{2}$.kkRed ifjes I; k gA
6. ,d ifjes I; k dks vius ekud : i ea rc ekuk tkrk gS tc ml dk gj ekukRed iwkked gsrFkk vAk vls gj ea 1 o0 vfrfjDr dkbZ l koZ xqku [kM u gka I; k, i $\frac{1}{3}, \frac{2}{7}$, bR; kfn ekud : i ea gA
7. nks ifjes I; k; kvka o0 chp vl hfer ifjes I; k, i gsrh gA
8. I eku gj okyh nks ifjes I; k; kvka dk ; ks Kkr djus o0 fy,] muo0 vAkka dks tkMk tk l drk gsrFkk gj ogh j [k dj ; ks Kkr fd; k tk l drk gA fHKUu & fHKUu gjka okyh nks ifjes I; k; kvka dks tkMk us o0 fy,] igys nksaka gjka dk y-l- Kkr fd; k tkrk gS vls fi Oj nksaka ifjes I; k; kvka dks y-l- o0 cjkj I eku gj okyh nks lery; ifjes I; k; kvka eacny dj tkMk+fy; k tkrk gA mngj.kkFk] $\frac{2}{3} \frac{3}{8} \frac{16}{24} \frac{9}{24} \frac{16}{24} \frac{9}{24} \frac{7}{24}$ gA ; gka 3 vls 8 dk y- l- 24 gA

9. nks ifjes lā; kvka dk 0; odyu djus oḡ fy, ge ?kvkz tkus okyh ifjes lā; k oḡ ; kṣ; ifryke dks vḡ; ifjes lā; k ea tkMfsgā

$$\text{bl izdkj] } \frac{7}{8} \frac{2}{3} \frac{7}{8} \frac{2}{3} \text{ dk ; kṣ; ifryke } = \frac{7}{8} \frac{(2)}{3} \frac{21}{24} \frac{5}{24} \text{ gā}$$

10. nks ifjes lā; kvka dk xqkk djus oḡ fy,] ge bu lā; kvka oḡ vākkar Fkk gjka dks

vyy&vyy xqkk djrs gā vkj fi Qj xqkui Qy dks $\frac{\text{vāka dk xqkui Qy}}{\text{gjka dk xqkui Qy}}$ oḡ : i ea fy [krs gā

11. ,d ifjes lā; k dks ,d vḡ; 'kḡ; sj ifjes lā; k ls Hkkx nsus oḡ fy,] ge igyh ifjes lā; k dks vḡ; ifjes lā; k oḡ 0; Øe ls xqkk djrs gā bl izdkj

$$\frac{7}{2} \frac{4}{3} \frac{7}{2} \times \left(\frac{4}{3} \text{ dk 0; Øe} \right) \frac{7}{2} \times \frac{3}{4} \frac{21}{8} \text{ gā}$$

