अध्याय

11 cy rFkk nkc

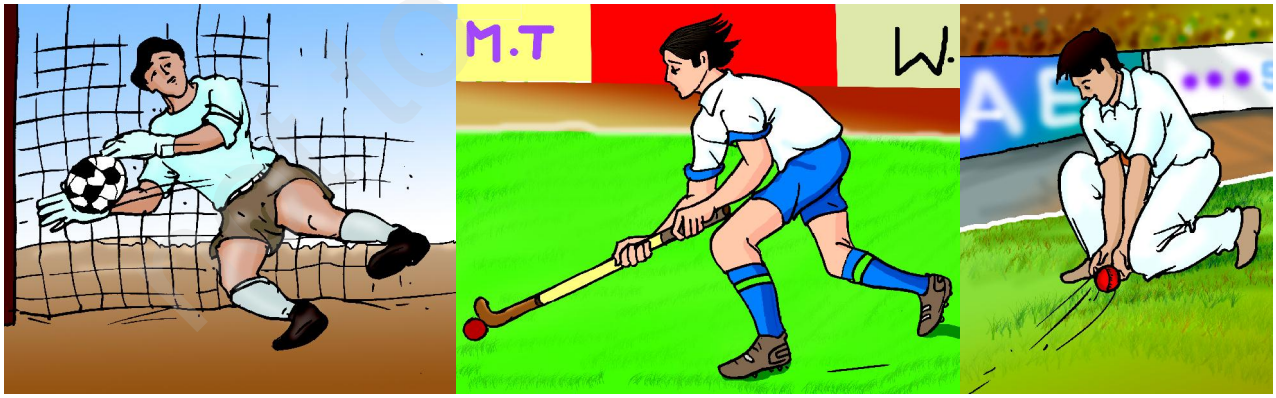
d{kk VII e vki lh[k poQ g fd oLr, xfr oQl djrh gA D;k vki crk ldr g fd ge ;g oQl fuf'pr djr g fd dkb oLr nljh oLr l vfèkd r ,dkd le; e pyh xb njh D;k lfpr djrh g\ vki ;g Hkh tkur g fd tlh dkb xfr'khy oLr èkheh gk tkrh gA dHkh&dHkh ;g viuh xfr dh fn'kk Hkh cny ldrh gA ;g Hkh lHko g fd xn èkheh gk tk, rFkk viuh fn'kk Hkh cny yA D;k vkiu dHkh lkpk g fd xfr'khy oLr èkheh ;k r fn'kk oQl cny yrh g\

vkb, viu ifrfnu oQ oQN vuHkok dk Lej.k djA fdlh iQVcky dk xfr'khy dju oQ fy, D;k djr g\ fdlh xfr'khy xn dk] vkj vfèkd r l pyku oQ fy, vki D;k djr g\ ,d xkyh (xkyj{kd) xn dk fdl idkj jkdrk g\ {k=k j{kd] cYyckt }kjk fgV dh xb xn dk oQl jkdr g\ gkdh dk f[kykMh gkdh l igkj djoQ fdlh xfr'khy xn dh fn'kk cny nrk g (fp=k 11-1)A bu lHkh fLFkfr;k e xn dh xfr dk r ;k èkhek dj fn;k tkrk g vFkok bldh xfr dh fn'kk dk cny fn;k tkrk gA

ge ik;% dgr g fd tc fdlh xn dk èkDdk nr g] iQdr g] Bkdj ekjr g ;k igkj djr g rk ml ij cy yxk;k tkrk gA cy D;k g\ ftu oLrvk ij ;g yxk;k tkrk g mu ij ;g D;k iHkko Mkyrk g\ bl vè;k; e ge ,l gh i'uk oQ mÙkj [kktxA

11-1 cyµvid"k.k ;k vfHkd"k.k

mBkuk] [kkyuk] cn djuk] Bkdj ekjuk] fgV djuk] igkj djuk] èkDdk nuk] [khpuk vkfn ,lh fØ;k, g tk ik;% oQN dk;k dk o.ku dju oQ fy, i;kx dh tkrh gA bue l iR;d dk; ik;% oLr dh xfr e fdlh idkj dk ifjoru yku dk i;kl djrk gA D;k bu 'kCnk dh txg ,d ;k vfèkd vU; 'kCnk dk i;kx dj ldr g\ vkb, Kkr djA



(a) (b) (c)

fp=k 11-1 % *(a)* xkyh] xky dk cpkr g, *(b)* gkdh dk f[kykMh xn ij igkj djr g, *(c)* {k=kj{kd xn dk jkdr g,A

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fØ;kdyki 11-1

lkj.kh 11-1 e oLrvk dh xfr dh lifjfpr fLFkfr;k oQ oQN mnkgj.k fn; x, gA vki bue oQN ,lh gh vkj vfèkd fLFkfr;k dk tkM ldr g vFkok bu mnkgj.kk e l oQN dk cny ldr gA iR;d n'kk e dk; dk èkDdk nuk vFkok@;k [khpuk oQ :i e igpkfu, rFkk lkj.kh e fyf[k;A vkidh lgk;rk oQ fy, ,d mnkgj.k fn;k x;k gA

lkj.kh 11-1 oQN dk;k dk vid"k.k rFkk vfHkd"k.k oQ :i e igpkuuk

Ø-l-	fLFkfr dk o.ku	dk; % (/Ddk nuk@p;u djuk@[khpuk@Bkdj ekjuk@mBkuk@>dkuk@mMkuk@iQduk@cn djuk@igkj djuk@Åij mBkuk)				dk; dk 0;Dr dj ldr g	
						vid"k.k	vfHkd"k.k
1-	e xfr'khy cukuk	/Ddk nuk	[khpuk	mBkuk	µ	gk	gk
2-	njok djuk						
3-	oQ, l ikuh dh ckYVh dk [khpuk						
4-	iQVcky oQ f[kykMh dk iuYVh fdd yuk						
5-	,d cYyckt }kjk fØoQV dh xn ij igkj djuk						
6-	ynh gb cyxkMh dk pykuk						
7-	fdlh e [kkyuk						

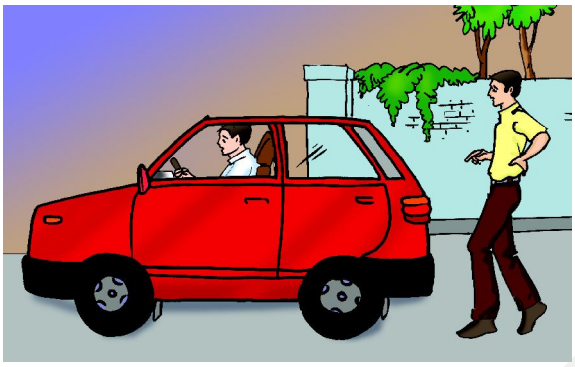
D;k vkiu è;ku fn;k fd bue l iR;d dk; dk vfHkd"k.k ([khpuk) ;k vid"k.k (èkDdk nuk) vFkok nkuk oQ :i e 0;Dr fd;k tk ldrk gA D;k ge bll ;g fu"d"k fudky ldr g fd fdlh oLr dk xfr e yku oQ fy,] ml èkDdk nuk (vidf"kr djuk) ;k [khpuk (vfHkdf"kr djuk) iMrk g\

foKku e fdlh oLr ij yxu oky èkDoQ (vfHkd"k.k) ;k f[kpko (vid"k.k) dk cy dgr gA vr% ge dg ldr g fd oLrvk dk nh xb xfr cy yxu oQ dkj.k gkrh gA oLr ij cy dc yxrk g\ vkb, Kkr djA

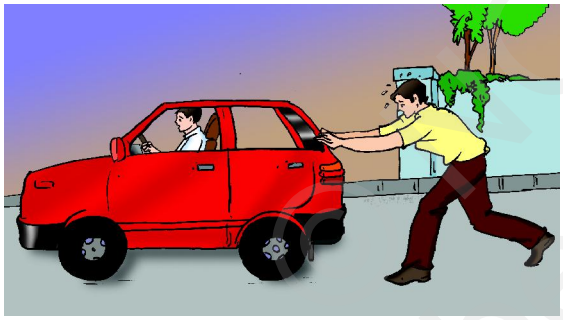
eu d{kk vı e i<k g fd pcd ,d oQ VdM dk viuh vkj vkdf"kr djrk gA D;k vkd"k.k Hkh ,d f[kpko (vfHkd"k.k) g\ fdlh pcd oQ nk leku /ok oQ chp ifrd"k.k oQ ckj e vki D;k lkpr g\ ;g f[kpko (vfHkd"k.k) g ;k èkDdk (vid"k.k)\

11.2 cy vU;kU;fØ;k oQ dkj.k yxr g

eku yhft, dkb vkneh fLFkj dkj oQ ihN [kMk g [fp=k 11.2(a)]A D;k mldh mifLFkfr oQ dkj.k dkj xfr e vk,xh\ eku yhft, vc vkneh dkj dk èkDdk yxkuk ikjEHk djrk g [fp=k 11.2(b)]] vFkkr] og bl ij cy yxkrk gA dkj yxk, x, cy dh fn'kk e xfr djuk ikjEHk dj ldrh gA è;ku nhft,



fp=k 11.2*(a)* % dkj oQ ihN [kMk ,d vknehA

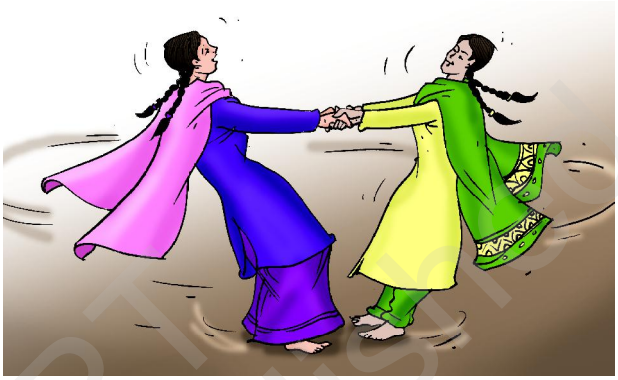


fp=k 11.2*(b)* % ,d vkneh }kjk dkj dk /Ddk yxkukA

fd dkj dk xfr nu oQ fy, vkneh dk bl èkDdk yxkr jguk gkxkA

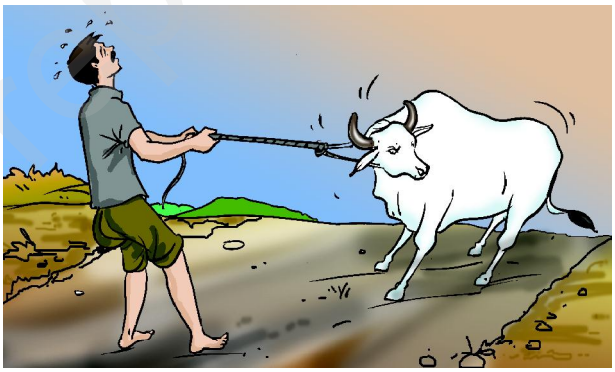
fp=k 11.3*(a)* % dku fdl /oQy jgk g\

fp=k 11.3 rhu fLFkfr;k n'kkrk g ftul lHkor% vki ifjfpr gkxA D;k vki crk ldr g fd bu fLFkfr;k e dku [khp jgk g vkj dku èkDdk n jgk g\ fp=k 11.3(a) e nkuk yMfd;k ,d&nlj dk



fp=k 11.3*(b)* % dku fdl [khp jgk g\

èkDdk nrh gb irhr gkrh g tcfd fp=k 11.3(b) e yMfd;k dk ;Xe ,d nlj dk [khpu dk i;Ru dj jgk gA blh idkj fp=k 11.3(c) e xk; rFkk



fp=k 11.3*(c)* % dku fdl [khp jgk g\

vkneh nkuk ,d nlj dk [khpr irhr gkr gA ;gk ij n'kk;h xb nkuk fLFkfr;k e yMfd;k ,d&nlj ij cy yxk jgh gA D;k ;g ckr vkneh rFkk xk; ij Hkh ykx gkrh g\

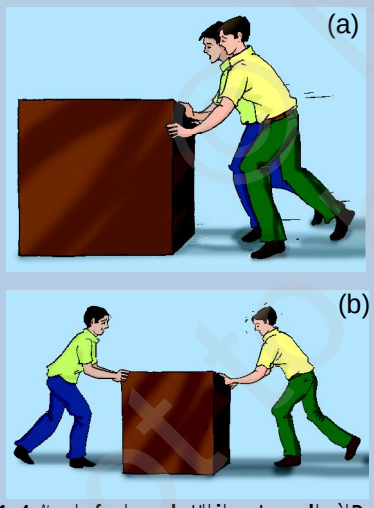
bu mnkgj.kk l ge fu"d"k fudky ldr g fd cy yxu oQ fy, de l de nk oLrvk e vU;kU;fØ;k gkuh vko';d gA bl idkj nk oLrvk oQ chp vU;kU;fØ;k oQ dkj.k muoQ chp cy yxrk gA

11-3 cyk dh [kktchu

vkb, cyk oQ ckj e oQN vfèkd lh[ku dk i;Ru djA

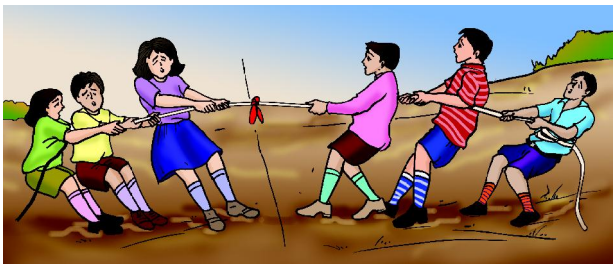
fØ;kdyki 11-2

dkb Hkkjh oLr tl e
vki tkj l èkoQyu ij gh xfr e yk loQA bl voQy èkoQyu dk i;Ru dhft,A D;k vki bl f[kldk ikr g\ vc viu fdlh fe=k l dfg, fd cDl dk mlh fn'kk e èkoQyu e vkidh lgk;rk dj [fp=k 11-4(a)]A D;k vc bldk f[kldkuk vklku g\ D;k vki crk ldr g fd ,lk D;k gvk\
vc mlh oLr dk fiQj l èkoQfy, yfdu bl ckj viu fe=k l dfg, fd og bl foijhr fn'kk l èkoQy [fp=k 11-4(b)]A D;k oLr xfreku gkrh g\ ;fn ;g xfr e vkrh g rk bldh xfr dh fn'kk dk ukV dhft,A D;k vki vueku yxk ldr g fd vki e l dku vfèkd cy yxk jgk g\



fp=k 11-4 % nk fe=k ,d Hkkjh oLr dk èkDdk nr g, *(a)* ,d gh fn'kk e *(b)* foijhr fn'kk eA

D;k vkiu dHkh jLlkd'h dk [ky n[kk g\ bl [ky e nk Vkfy;k ,d jLl dk foijhr fn'kk e [khprh g (fp=k 11-5)A nkuk Vkfy;k oQ lnL; jLl dk viuh fn'kk e [khpu dk i;Ru djr gA dHkh&dHkh



fp=k 11-5 % ;fn nkuk Vkfy;k jLl dk leku cy l [khprh g rk jLlk f[kldrk ughA

jLlk fcyoQy ugh f[kldrkA D;k ;g fp=k 11-3(b) e n'kk;h xb fLFkfr oQ leku ugh g\ tk Vkyh vfèkd tkj l [khprh g] vFkkr vfèkd cy yxkrh g] vr e ogh [ky e fot;h gkrh gA

; mnkgj.k cy oQ ckj e D;k l>kr g\

fdlh oLr ij ,d gh fn'kk e yxk, x, cy tM tkr gA vc Lej.k dhft, fd fØ;kdyki 11-2 e tc vki rFkk vkioQ fe=k u Hkkjh lnd dk ,d gh fn'kk e èkoQyk Fkk rk D;k gvk FkkA

;fn fdlh oLr ij nk cy foijhr fn'kk e dk; djr g rk bl ij yxu okyk oQy (uV) cy nkuk cyk oQ vrj oQ cjkcj gkrk gA fØ;kdyki 11-2 e tc vki nkuk Hkkjh lnd dk foijhr fn'kk e èkoQy jg Fk rk vkiu D;k n[kk Fkk\

Lej.k dhft, fd jLlkd'kh oQ [ky e tc nkuk Vkfy;k jLl ij cjkcj cy yxk dj [khprh g rk jLlk fdlh Hkh fn'kk e ugh tkrkA

bl idkj geu lh[kk fd ,d cy nlj l cMk ;k NkVk gk ldrk gA cy dh icyrk ik;% bloQ ifjek.k l ekih tkrh gA cy oQ ckj e crkr le; ge ml fn'kk dk mYy[k djuk Hkh vko';d g ftle cy dk; djrk gA ;g Hkh ;kn jf[k,] ;fn yxk, x, cy dh fn'kk ;k ifjek.k e ifjoru gk tk, rk bldk iHkko Hkh cny tkrk gA

D;k bldk vFk ;g g fd ;fn fdlh oLr ij foijhr fn'kkvk e yxu oky cy cjkcj g rk ml ij yxu okyk uV cy 'kU; gkxk\

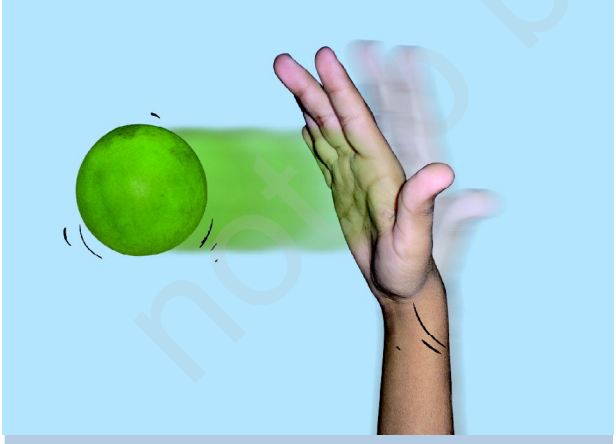
lkekU; :i e] fdlh oLr ij ,d l vfèkd cy yx gk ldr gA rFkkfi] oLr ij budk iHkko uV cy oQ dkj.k gh gkrk gA

11-4 cy oLr dh xfr dh voLFkk e ifjoru dj ldrk g

vkb, vc Kkr dj fd tc fdlh oLr ij cy yxrk g rk D;k gkrk gA

fØ;kdyki 11-3

jcM dh ,d xn yhft, rFkk bl fdlh lery lrg tl e
vc xn dk èkhj l lery lrg ij èkDdk nhft, (fp=k 11-6)A D;k xn xfr e vk tkrh g\ xfr'khy xn dk fiQj l èkDdk nhft,A D;k bldh pky e oQN ifjoru gkrk g\ ;g c<rh g ;k ?kVrh g\ vc viuh gFkyh dk xfr'khy xn oQ lkeu jf[k,A tl gh xfr'khy xn bl Li'k dj gFkyh dk gVk yhft,A D;k vkidh gFkyh xn ij dkb cy yxkrh g\ xn dh pky ij bldk D;k iHkko iMrk g\ D;k ;g c<rh g ;k ?kVrh g\ ;fn vki xfr'khy xn dk viuh gFkyh l jkd y rk D;k gkxk\



fp=k 11-6 % fojke voLFkk e xn ij cy yxku ij og xfr'khy gk tkrh gA

vki blh idkj dh vU; fLFkfr;k ij fopkj dj ldr gA mnkgj.k oQ fy,] iuYVh fdd yr le; f[kykMh xn ij cy yxkrk gA fdd yxu l igy xn fojke voLFkk e Fkh] vr% bldh pky 'kU; FkhA yxk, x, cy u xn dk xky dh vkj xfr inku dhA eku yhft, xkyh] xky cpku oQ fy, xn ij >iVrk g ;k mNyrk gA bl fØ;k }kjk xkyh xfr'khy xn ij cy yxku dk i;Ru djrk gA mloQ }kjk yxk;k x;k cy xn dk jkd ldrk g ;k fo{kfir dj ldrk g vkj xky gku l cpk ldrk gA ;fn xkyh xn dk jkdu e liQy gk tkrk g rk bldh pky 'kU; gk tkrh gA

; i{k.k l>kr g fd fdlh oLr ij yxk, x, cy }kjk mldh pky cnyh tk ldrh gA ;fn yxk;k x;k cy xfr dh fn'kk e g rk oLr dh pky c< tkrh gA ;fn cy oLr dh xfr dh fn'kk oQ foijhr fn'kk e yxk;k tk, rk oLr dh pky de gk tkrh gA

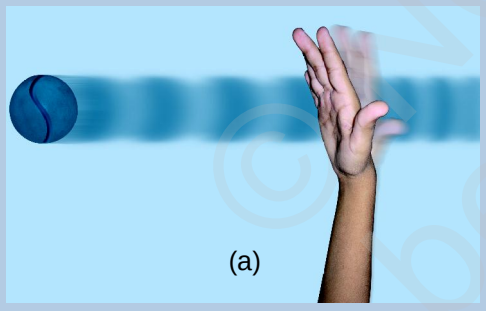
eu cPpk dk ,d&nlj l] jcM oQ Vk;j ;k fdlh ?kj dk èkoQy dj r dh gkM yxkr n[kk g (fp=k 11-7)A vc e le> x;k g fd èkDdk nu ij Vk;j dh pky D;k c< tkrh gA

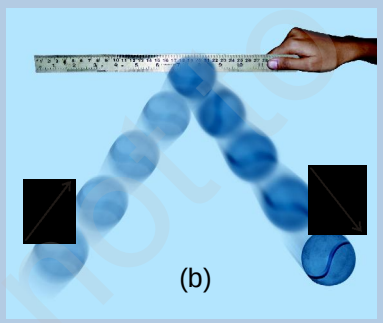
fp=k 11-7 % Vk;j dk r èkDdk yxkuk iMrk gA

igyh ;g tkuu oQ fy, mRld g fd D;k cy yxku l oQoy oLr dh pky gh ifjofrr gkrh gA vkb, Kkr djA

fØ;kdyki 11-4

,d xn yhft, rFkk bl fØ;kdyki 11-3 dh Hkkfr fdlh lery lrg ij jf[k,A xn dk èkDdk ndj pykb,A vc fp=k 11-8 e n'kk, vukj bloQ jkLr e viu T;kfefr cDl l ydj ,d iekuk jf[k,A ,lk dju l vki xfr'khy xn ij ,d cy yxk,xA D;k ieku l Vdjku oQ i'pkr xn mlh fn'kk e xfr djrh jgrh g\ bl fØ;kdyki dk nkgjkb, rFkk iR;d ckj ieku dk bl idkj jf[k, fd ; xfr'khy xn oQ iFk l igy l fHkUu dk.k cuk,A iR;d fLFkfr e ieku l Vdjku oQ i'pkr xn dh xfr dh fn'kk oQ ckj e viu i{k.kk dk ukV dhft,A





fp=k 11-8 % *(a)* fdlh lery lrg ij xn dk èkDdk ndj xfr'khy djuk *(b)* xn oQ jkLr e j[k ieku l Vdjku oQ i'pkr xn dh xfr dh fn'kkA

vc oQN vkj mnkgj.kk ij fopkj djr gA ckyhcky oQ [ky e f[kykMh ik;% fot;h pky cuku oQ fy, xfr'khy xn dk /oQy dj viuh Vhe oQ lkfFk;k oQ ikl igpk nr gA dHkh&dHkh tkj l igkj djoQ xn dk enku oQ nljh vkj igpk fn;k tkrk gA fØoQV e cYyck xn ij cy yxkdj viuk 'kkV [kyr gA D;k bu fLFkfr;k e xn dh xfr dh fn'kk e dkb ifjoru gkrk g\ bu lHkh mnkgj.kk e cy yxu oQ dkj.k xfr'khy xn dh pky rFkk fn'kk cny tkrh gA D;k vki bl idkj oQ oQN vkj mnkgj.k iLrr dj ldr g\

fdlh oLr dh pky vFkok mldh xfr dh fn'kk] vFkok nkuk e gku oky ifjoru dk bldh xfr dh voLFkk e ifjoru }kjk 0;Dr fd;k tkrk gA vr%] cy }kjk fdlh oLr dh xfr dh voLFkk e ifjoru yk;k tk ldrk gA

xfr dh voLFkk

fdlh oLr dh xfr dh voLFkk dk o.ku bldh pky rFkk xfr dh fn'kk l fd;k tkrk gA fojke voLFkk dk 'kU; pky dh voLFkk ekuk tkrk gA dkb oLr fojke voLFkk e vFkok xfr'khy e gk ldrh g- nkuk gh bldh xfr dh voLFkk, gA

D;k bldk ;g vFk g fd cy yxu ij lno gh fdlh oLr dh xfr dh voLFkk e ifjoru gkxk\ vkb, irk djA

;g gekjk lkekU; vuHko g fd vud ckj cy yxku ij Hkh oLr dh xfr dh voLFkk e ifjoru ugh gkrkA mnkgj.k oQ fy,] ,d Hkkjh lnd vkioQ }kjk vfèkdre cy yxk, tku ij Hkh xfr u djA blh idkj] ;fn vki fdlh nhokj dk èkoQyu dk i;kl dj rk ml ij vkidk cy dk dkb iHkko fn[kkb ugh nxkA

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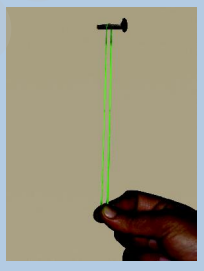
11-5 cy fdlh oLr dh vkÑfr e ifjoru dj ldrk g

fØ;kdyki 11-5

lkj.kh 11-2 oQ LrHk 1 e oQN ,lh fLFkfr;k nh xb g ftue oLr, xfr ugh dj ldrhA lkj.kh oQ LrHk 2 e o fofèk;k l>kb xb g ftle iR;d oLr ij cy yxk;k tk ldrk g tcfd LrHk 3 bu fØ;kvk dk fp=k n'kkrk gA ftruh fLFkfr;k e lHko gk cy dk iHkko n[ku dk i;Ru dhft,A vki viu i;koj.k e miyCèk lkexh dk mi;kx djoQ blh idkj dh oQN vU; fLFkfr;k dk Hkh ;gk ij tkM ldr gA viu i{k.kk dk lkj.kh oQ LrHk 4 rFkk 5 e ukV dhft,A

lkj.kh 11-2 oLrvk ij cy oQ iHkko dk vè;;u djuk

fLFkfr dk o.ku	cy oQl yxk,	fp=k	cy dk iHkko			
			xfr dh voLFkk e ifjoru		vkÑfr e ifjoru	
			gk	ugh	gk	ugh
,d lyV e x/k gvk vkVk	gkFk l uhp dh vkj ncku ij					
lkbfdy dh xíh e yxh dekuh	xíh ij cB dj					
,d gd ;k nhokj e yxh dhy l yVdk jcM dk NYyk	,d Hkkj yVdk dj ;k bloQ Lor=k flj dk [khp dj					
nk bVk ij j[kk lykfLVd ;k /kr dk iekuk	LoQy oQ chpkchp ,d Hkkj j[k dj					

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lkj.kh 11-2 oQ i{k.kk l vki D;k fu"d"k fudkyr g\ tc vki viuh gFkfy;k oQ chp ,d iQy g, xCckj dk j[k dj nckr g rk D;k gkrk g\ tc xèk vkV dh ykb dk cy dj pkrh cukr g rk mldh vkÑfr ij D;k iHkko iMrk g\ tc vki e j[kh fdlh jcM dh xn dk nckr g rk D;k gkrk g\ bu lHkh mnkgj.kk e vkiu n[kk fd fdlh oLr ij cy yxku l mldh vkÑfr e ifjoru gk ldrk gA

mijkDr lHkh fØ;kdyki dj yu oQ i'pkr] vc vki le> x, gkx fd cy %

- fdlh oLr dk fojke voLFkk l xfr e yk ldrk gA
- xfr'khy oLr dh pky e ifjoru dj ldrk gA
- xfr'khy oLr dh fn'kk e ifjoru dj ldrk gA
- oLr dh vkÑfr e ifjoru yk ldrk gA
- bue l oQN vFkok lHkh iHkkok dk mRiUu dj ldrk gA

;g Lej.k j[kuk vko';d g fd ;|fi cy bue l ,d ;k vfèkd iHkkok dk mRiUu dj ldrk g] rFkkfi] bue l dkb Hkh iHkko cxj cy yxk, mRiUu ugh gk ldrkA vr% dkb oLr fcuk cy yxk,] viu vki xfr e ugh vk ldrh] viu vki fn'kk ifjofrr ugh dj ldrh rFkk viu vki vkÑfr e ifjoru ugh yk ldrhA

11-6 lEioQ cy

i'kh; cy

D;k vki e èkoQy ;k mBk ldr g\ D;k cxj idM ikuh dh fdlh ckYVh dk mBk ldr g\ lkekU;r%] fdlh oLr ij cy yxku oQ fy,] vkioQ 'kjhj dk oLr oQ lkFk lEioQ gkuk pkfg,A lEioQ fdlh NMh ;k jLlh dh lgk;rk l Hkh gk ldrk gA tc ge fdlh oLr] tl viu fo|ky; oQ cLr dk èkoQyr g ;k ikuh dh ckYVh dk mBkr g] rk cy dgk l vkrk g\ ;g cy gekj 'kjhj dh eklif'k;k }kjk yxrk gA gekjh eklif'k;k oQ fØ;kLo:i yxu oky cy dk i'kh; cy dgr gA

> i'kh; cy gh ge viu lHkh fØ;kdyki dju ;kX; cukrk gA bu fØ;kdykik e 'kjhj dh xfr rFkk eMuk Hkh lfEefyr gA d{kk VII e vkiu i<k g fd ikpu ifØ;k e Hkktu vkgkj uky e vkx dh vkj èkoQyk tkrk gA D;k bl ifØ;k dk i'kh; cy djrk g\ vki ;g Hkh tkur g fd 'olu ifØ;k e] ok; vUnj yr rFkk ckgj fudkyr le;] iQiQM iQyr vkj floQMr gA 'olu ifØ;k dk lHko cuku oQ fy, ; if'k;k dgk fLFkr g\ gekj 'kjhj e if'k;k }kjk cy yxku oQ D;k oQN vkj mnkgj.k vki cryk ldr g\

i'k Hkh viu 'kkjhfjd fØ;kdykik rFkk vU; dk;k dk dju oQ fy, i'kh; cy dk mi;kx djr gA cy] ?kkM] xèk rFkk ÅV tl i'k gekj fy, fofHkUu dk; dju oQ fy, mi;kx fd, tkr gA bu dk;k dk dju oQ fy, o i'kh; cy dk mi;kx djr g (fp=k 11-9)A

fp=k 11-9 % i'kvk dk i'kh; cy vud dfBu dk;k dk dju oQ fy, i;kx fd;k tkrk gA

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D;kfd i'kh; cy rHkh yxk;k tk ldrk g tc if'k;k fdlh oLr oQ lEioQ e gk] blfy, bl lEioQ cy Hkh dgr gA D;k vU; idkj oQ lEioQ cy Hkh gA vkb, irk djA

?k"k.k

viu oQN vuHkok dk Lej.k dhft,A iQ'k ij y<du okyh xn èkhj&èkhj èkheh gk tkrh g vkj vUr e #d tkrh gA lkbfdy pykr le; tc ge iMy pykuk cn dj nr g rk ; Hkh èkhj&èkhj èkheh gkrh g vkj vr e #d tkrh gA fdlh dkj ;k LoQVj oQ btu dk cn dj nu ij og Hkh oQN le; ckn #d tkrk gA blh idkj uko Hkh [kuk cn dj nu ij] oQN nj pydj #d tkrh gA D;k vki bl idkj oQ oQN vU; vuHkok dk bue tkM ldr g\

bu lHkh fLFkfr;k e oLrvk ij dkb cy yxrk irhr ugh gkrk fiQj Hkh budh pky èkhj&èkhj de gkrh tkrh g vkj vUr e ; fojke voLFkk e vk tkrh gA budh xfr dh voLFkk e ifjoru fdl dkj.k gkrk g\ D;k bu ij dkb cy yx jgk gkrk gA D;k vki vueku yxk ldr g fd iR;d n'kk e cy fdl fn'kk e yx jgk gkxk\

bu lHkh mnkgj.kk e oLrvk dh xfr dh voLFkk e ifjoru dk dkj.k ?k"k.k cy gA iQ'k rFkk xn dh lrgk oQ chp yxu okyk ?k"k.k cy gh xfr'khy xn dk fojke voLFkk e ykrk gA blh idkj ikuh rFkk uko dh lrgk oQ chp ?k"k.k] [kuk cn dju ij uko dk jkd nrk gA

?k"k.k cy lHkh xfr'khy oLrvk ij yxrk g vkj bldh fn'kk lno xfr dh fn'kk oQ foijhr gkrh gA D;kfd ?k"k.k cy nk lrgk oQ chp lEioQ oQ dkj.k mRiUu gkrk g blfy, ;g Hkh lEioQ cy dk ,d mnkgj.k gA bl cy oQ ckj e vki vfèkd tkudkjh vè;k; 12 e iklr djxA

vki ;g tkuu oQ fy, mRld gkx fd D;k ;g vko';d g fd fdlh oLr ij cy yxu okyk cy lno lEioQ cy gh gkA vkb, irk yxk,A

11-7 vlEioQ cy

pdh; cy

fØ;kdyki 11-6

NM pdk dk ,d ;Xe yhft,A fp=k 11-10 e n'kk, vulkj ,d pcd dk rhu xky iflyk ;k ydMh oQ cyuk (jkyjk) ij jf[k,A vc nlj pcd oQ ,d flj dk cyuk ij j[k pcd oQ flj oQ lehi ykb,A è;ku jf[k, fd nkuk pcd ,d&nlj dk Li'k u djA nf[k, D;k gkrk gA vc pcd oQ nlj flj dk cyuk ij j[k pcd oQ mlh flj oQ lehi ykb, (fp=k 11-10)A iR;d ckj ukV dhft, fd D;k gkrk g tc nlj pcd dk cyuk ij j[k pcd oQ lehi yk;k tkrk gA

fp=k 11-10 % nk pdk oQ chp vkd"k.k rFkk ifrd"k.k dk i{k.k djukA

D;k cyuk ij j[kk pcd] nlj pcd dk lehi yku ij xfr dju yxrk g\ D;k ;g lno lehi vku oky pcd dh fn'kk e xfr djrk g\ ; i{k.k D;k l>kr g\ D;k bldk vFk ;g g fd pcdk oQ chp dkb cy vo'; gh dk; dj jgk g\

d{kk VI e vki lh[k poQ g fd nk pcdk oQ leku èko ,d&nlj dk ifrdf"kr djr g rFkk vleku èko ,d&nlj dk vkdf"kr djr gA nk oLrvk oQ chp vkd"k.k vFkok ifrd"k.k dk Hkh [khpu ;k èkDdk nu oQ :i e n[kk tk ldrk gA D;k pcdk oQ chp yxu oky cy dk n[ku oQ fy, vkidk bUg lEioQ e ykuk iMrk g\ ,d pcd nlj pcd ij cxj lEioQ e vk, gh cy yxk ldrk gA pcd }kjk yxk;k x;k cy vlEioQ cy dk ,d mnkgj.k gA

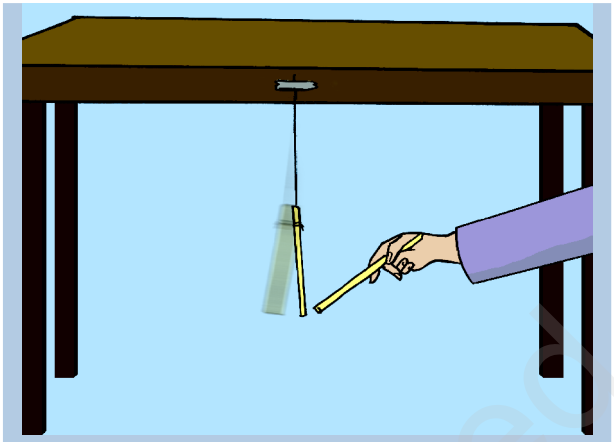
blh idkj] pcd }kjk fdlh ykg oQ VdM ij yxk;k x;k cy Hkh vlEioQ cy gA

fLFkjo|r cy

fØ;kdyki 11-7

lykfLVd dk ,d LVk yhft, vkj bldk yxHkx nk cjkcj Hkkxk e dkV yhft,A èkkx dh lgk;rk l ,d VdM dk fdlh e fdukj l yVdkb, (fp=k 11-11)A vc LVk oQ nlj VdM dk viu gkFk e idfM, vkj blQ Lor=k flj dk dkx jxfM,A LVk oQ jxM g, flj dk yVoQ g, LVk oQ lehi ykb,A lfuf'pr dhft, fd nkuk VdM ,d&nlj dk Li'k u djA vki D;k n[kr g\

vc] yVoQ g, LVk oQ Lor=k flj dk dkx dh 'khV l jxfM,A fiQj l nlj LVk oQ VdM dk ftl igy gh dkx jxMk tk pdk g] yVoQ g, LVk oQ Lor=k flj oQ lehi ykb,A vc vki D;k n[kr g\



fp=k 11-11 % dkx vkdf"kr djrk g yfdu ;fn yVdk gvk LVk Hkh dkx ;g ml ifrdf"kr djrk gA

dkx vko'k mikftr dj yrk gA ,lk LVk vkof'kr oLr dk ,d mnkgj.k gA

,d vkof'kr oLr }kjk fdlh nljh vkof'kr vFkok vukof'kr oLr ij yxk;k x;k cy fLFkjo|r cy dgykrk gA oLrvk oQ lEioQ e u gku ij Hkh ;g cy dk; djrk gA blfy, fLFkjo|r cy vlEioQ cy dk ,d vU; mnkgj.k gA vki vè;k; 15 e fo|r vko'kk oQ ckj e foLrkj l vè;;u djxA

x#Rokd"k.k cy

vki tkur g fd ;fn dkb flDdk ;k iu vkioQ gkFk l NV tk, rk ;g èkjrh dh vkj fxjrk gA iM l vyx gku oQ i'pkr ifÙk;k ;k iQy Hkh èkjrh dh vkj gh fxjr gA D;k dHkh vkiu lkpk g fd ,lk D;k gkrk g\

tc flDdk vkioQ gkFk e idMk gvk g rk ;g fojke voLFkk e gA tl gh bldk NkMk tkrk g] ;g uhp dh vkj fxjuk ikjEHk gk tkrk gA bll Li"V g fd flDoQ dh xfr dh voLFkk e ifjoru gkrk gA D;k bl ij fcuk cy yx ,lk gk ldrk g\ ;g cy dku lk g\

oLr, iFoh dh vkj blfy, fxjrh g D;kfd ;g mUg viuh vkj vkdf"kr djrh gA bl cy dk x#Ro cy ;k oQoy x#Ro dgr gA ;g ,d vkd"k.k cy gA x#Ro cy iR;d oLr ij yxrk gA x#Ro cy ge lHkh ij gj le; cxj gekjh tkudkjh oQ yxrk jgrk gA tl gh ge dkb uy [kkyr g ikuh èkjrh dh vkj cgu yxrk gA x#Ro cy oQ dkj.k gh ufn;k e ikuh uhp dh vkj cgrk gA

x#Ro oQoy iFoh dk gh x.k ugh gA okLro e fo'o e lHkh oLr,] pkg o NkVh gk ;k cMh gk] ,d nlj oQ Åij cy yxkrh gA ;g x#Rokd"k.k cy dgykrk gA

11-8 nkc

vkiu d{kk VII e i<k g fd riQku ;k pØokr oQ le; icy iou ?kj dh Nrk dk Hkh mMk y tkrh gA vkiu ;g Hkh lh[kk g fd iou rFkk pØokr ok; nkc oQ vUrj oQ dkj.k cur gA D;k nkc rFkk cy e dkb lcèk g\ vkb, irk yxk,A

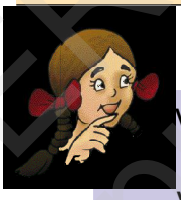
fdlh ydMh oQ r[r e ,d dhy dk bloQ 'kh"k l Bkdu dk i;Ru dhft,A D;k vki liQy gk ikr g\ vc dhy dk udhy flj l Bkdu dk i;Ru dhft, (fp=k 11-12)A D;k vki bl ckj bl Bkd ikr g\ lfCt;k dk fdlh oQfBr (blunt) rFkk ,d rh[k pkoQ l dkVu dk i;kl dhft,A fdle vklkuh g\

D;k vkidk ,lk yxrk g fd ftl {k=kiQy ij cy yxk;k tkrk g (mnkgj.k oQ fy,] dhy oQ udhy flj ij) og bu dk;k dk vklku cuku e ,d Hkfedk fuHkkrk g\

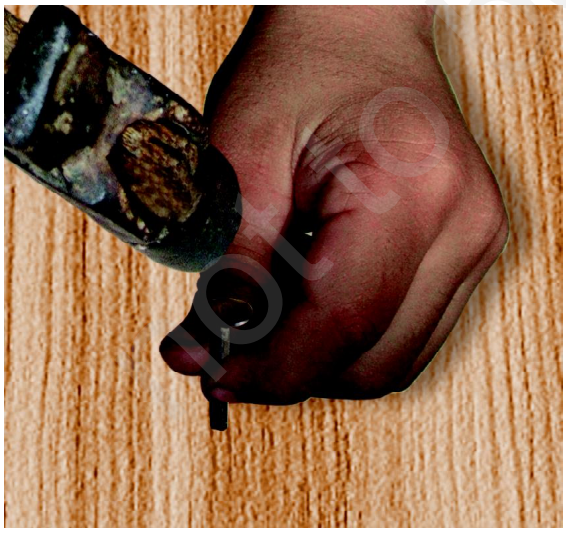
fdlh i"B oQ ifr ,dkd {k=kiQy ij yxu oky cy dk nkc dgr gA

$$\text{nkc} = \frac{\text{cy}}{\{k=kiQy\ ftl\ ij\ ;g\ yxrk\ g}$$

;gk ij ge oQoy mu cyk ij fopkj djr g tk ml i"B oQ yEcor g ftl ij nkc Kkr djuk gA



vc ejh le> e vk;k fd oQfy;k dk tc Hkkjh ck> mBkuk gkrk g rk o viu flj ij ,d diM dk xky yiV dj D;k j[kr g (fp=k 11-13)A bl idkj o viu 'kjhj l ck> oQ lEioQ {k=kiQy dk c<k nr gA vr% muoQ 'kjhj ij yxu okyk nkc de gk tkrk g vkj o ck> dk vklkuh l mBk ldr gA



fp=k 11-12 % ydMh oQ r[r e dhy BkdukA

fp=k 11-13 Hkkjh ck> dk y tkr g, oQyhA

è;ku nhft, fd mijkDr 0;td e {k=kiQy ^gj* e gA blfy, ;fn cy cjkcj gk rk i"B dk {k=kiQy ftruk de gkxk ml ij nkc mruk gh vfèkd gkxkA dhy oQ udhy flj dk {k=kiQy bloQ 'kh"k dh vi{kk cgr de gA blfy, ogh cy dhy oQ udhy flj dk ydMh oQ r[r e Bkdu oQ fy, i;kIr nkc mRiUu dj nrk gA

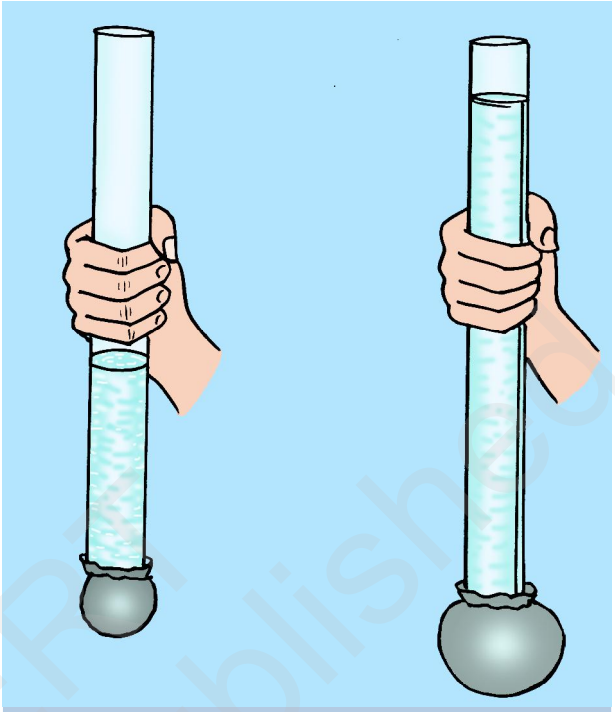
D;k vc vki crk ldr g fd oQèk ij yVdku oky Fkyk e pkMh iVh D;k yxkb tkrh g\ bu Fkyk e ckjhd iVh D;k ugh yxkb tkrh\ vkj] dkVu rFkk ljk[k dju oky vk
gkr g\

D;k nok rFkk xlk }kjk Hkh nkc yxrk g\ D;k ;g Hkh ml {k=kiQy ij fuHkj gkrk g ftl ij cy dk; djrk g\ vkb, Kkr djA

11-9 nok rFkk xlk }kjk yxk;k x;k nkc

fØ;kdyki 11-8

ikjn'kh dkp dh ,d uyh vFkok lykfLVd dk ikbi yhft,A ikbi@uyh dh yEckb yxHkx 15 lVhehVj rFkk bldk 0;kl yxHkx 5&7-5 lVhehVj gkuk pkfg,A ,d vPNh] iryh jcM dh 'khV Hkh yhft,A vki xCckj dh jcM dk i;kx dj ldr gA ikbi oQ ,d flj ij jcM dh 'khV dk rku dj ckèk nhft,A ikbi dk Åèokèkj fLFkfr e j[kr g, chp e l idfM, (fp=k 11-14)A viu fdlh fe=k l ikbi e oQN ikuh mMyu oQ fy, dfg,A D;k jcM dh 'khV ckgj dh vkj iQy tkrh g\ ikbi e ikuh oQ LrEHk dh Åpkb Hkh ukV dhft,A ikbi e oQN ikuh vkj mMfy,A jcM 'khV oQ iQyko rFkk ikbi e ikuh oQ LrEHk dh Åpkb dk iu% ukV dhft,A bl ifØ;k dk oQN ckj nkgjkb,A D;k vki jcM 'khV oQ iQyko rFkk ikbi e ikuh oQ LrEHk dh Åpkb e oQN lcèk n[k ikr g\



fp=k 11-14 % fdlh cru dh ryh ij ikuh }kjk yxk;k tku okyk nkc ikuh oQ LrEHk dh Åpkb ij fuHkj djrk gA

fØ;kdyki 11-9

lykfLVd dh ,d ckry yhft,A vki ikuh ;k eni; (soft drink) dh mi;kx dh tk pdh dkb ckry y ldr gA fp=k 11-15 e n'kk, vulkj ckry oQ in oQ ikl oQN lVhehVj yEch dkp dh ,d cyukdkj uyh yxkb,A ,lk dju oQ fy, dkp dh uyh oQ ,d flj dk FkkMk lk xe dhft, vkj fiQj tYnh l ckry oQ in oQ lehi ?klk nhft,A lfuf'pr dhft, fd tkM oQ ikl l ikuh u fjlA ;fn ikuh fjlrk g rk bldk fi?ky eke l vPNh idkj cn dhft,A dkp dh uyh oQ eg dk fØ;kdyki 11-8 oQ vulkj ,d iryh jcM dh 'khV l cn dhft,A vc ckry dk ikuh l vkèkk Hkfj,A vki D;k n[kr g\ bl ckj dkp dh uyh oQ eg ij yxkb xb jcM dh 'khV D;k iQy tkrh

g\ ckry e oQN ikuh vkj Mkfy,A D;k jcM dh 'khV oQ iQyko e oQN vUrj vkrk g\ è;ku nhft, fd jcM dh 'khV dk cru oQ uhp

fp=k 11-15 % no cru dh nhokjk ij nkc Mkyrk gA

ugh cfYd ik'o e (nhokj e) yxk;k x;k gA D;k bl fLFkfr e jcM 'khV dk iQyuk ;g n'kkrk g fd ikuh cru dh nhokjk ij Hkh nkc Mkyrk g\ vkb, bldh vkj vfèkd Nkuchu djA

fØ;kdyki 11-10

lykfLVd dh ,d [kkyh ckry vFkok ,d cyukdkj cru yhft,A vki Vkyde ikmMj dk [kkyh fMCck ;k eni; dh lykfLVd dh ckry dk mi;kx dj ldr gA ckry oQ in oQ ikl pkjk fn'kkvk e pkj ljk[k dhft,A è;ku nhft, fd ljk[k in l leku Åpkb ij gkA (fp=k 11-16)A vc ckry dk ikuh l Hkfj,A vki D;k n[kr g\

D;k ljk[kk l fudyrk ikuh ckry l cjkcj dh njh ij fxjrk g\ ;g D;k n'kkrk g\

D;k vc vki dg ldr g fd no cru dh

fp=k 11-16 % no cru dh nhokjk ij leku xgjkb ij leku nkc Mkyr gA

nhokjk ij nkc Mkyr g\

D;k xl Hkh nkc Mkyrh g\ D;k o Hkh ftl cru e j[kh tkrh g mldh nhokjk ij nkc Mkyrh g\ vkb, Kkr djA

tc vki fdlh xCckj dk iQykr g rk mloQ

ty&lHkj.k oQ fy, i;kx fd, tku oky ikbik oQ yhd djr g, tkMk ;k ljk[kk l eu ikuh oQ iQOokjk dk ckgj vkr n[kk gA D;k ;g ikuh }kjk ikbi dh nhokjk ij yxk, tku oky nkc oQ dkj.k ugh g\

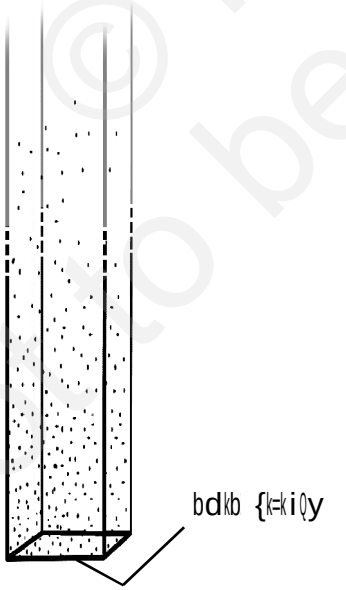
eg dk D;k cn djuk iMrk g\ ;fn fdlh iQyk, g, xCckj oQ eg dk [kky n rk D;k gkrk g\ eku yhft, vkioQ ikl ,d ,lk xCckjk g ftle ljk[k gA D;k vki bl iQyk ik,x\ ;fn ugh] rk D;k\ D;k ge dg ldr g fd ok; iR;d fn'kk

e nkc yxkrh g\

Lej.k dhft, fd ;fn lkbfdy dh V;c e iDpj gk rk bloQ vnj dh gok dk D;k gkrk g\ D;k ; i{k.k n'kkr g fd ok; fdlh iQyk, g, xCckj ;k lkbfdy dh V;c dh vnj dh nhokjk ij nkc Mkyrh g\ bl idkj ge dg ldr g fd xl ftl cru e j[kh tkrh g mldh nhokjk ij nkc Mkyrh gA

11-10 ok;eMyh; nkc

ge tkur g fd gekj pkjk vkj ok; gA ok; oQ bl vkoj.k dk ok;eMy dgr gA ok;eMyh; ok; iFoh oQ ry l db fdykehVj Åij rd iQyh gb gA bl ok; }kjk yxk, x, nkc dk ok;eMyh; nkc dgr gA ge tkur g fd ifr ,dkd {k=kiQy ij yxu oky cy dk nkc dgr gA ;fn ge ,d bdkb {k=kiQy dh dYiuk dj] vkj bloQ Åij ok; l Hkjk ,d yEck cyu [kMk gvk eku] rc bl cyu e ok; dk Hkkj ok;eMyh; nkc oQ cjkcj gkxk (fp=k 11-17)

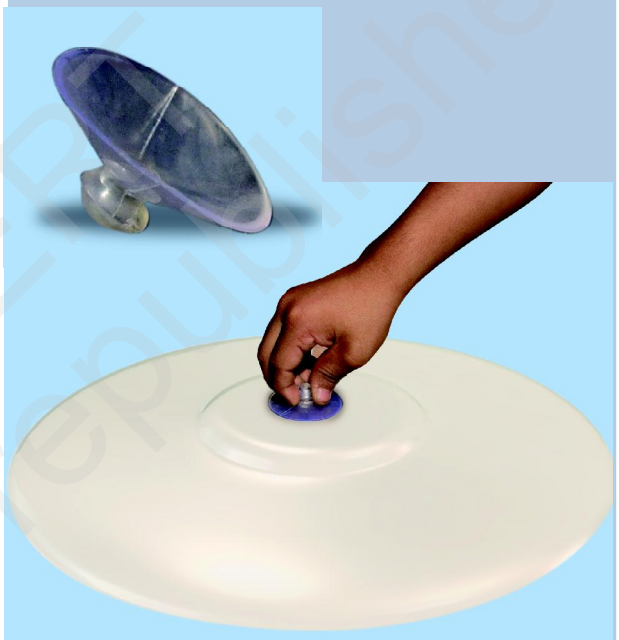


fp=k 11-17 % bdkb {k=kiQy oQ ok;LrEHk dk Hkkj ok;eMyh; nkc oQ cjkcj gA

yfdu ok;eMyh; nkc g fdruk\ vkb, bloQ ifjek.k oQ ckj e fopkj djA

fØ;kdyki 11-11

,d vPNh jcM dk ,d p"kd (sucker) yhft,A ;g jcM oQ ,d NkV l;ky dh Hkkfr fn[kkb nrk g (fp=k 11-18)A bldk fdlh lery fpdu i"B ij tkj l nckb,A D;k ;g i"B l fpid tkrk g\ bldk [khp dj i"B l mBku dk i;Ru dhft,A D;k vki liQy gk ikr g\



fp=k 11-18 % ,d i"B ij nck;k gvk jcM dk p"kdA

tc vki p"kd dk nckr g rk di rFkk i"B oQ chp dh vfèkdk'k ok; ckgj fudy tkrh gA p"kd ij ok;eMyh; nkc yxrk g blfy, ;g i"B oQ lkFk fpid tkrk gA p"kd dk i"B l [khp dj vyx dju oQ fy, yxk;k x;k cy bruk vfèkd gkuk pkfg, fd ;g ok;eMyh; nkc ij ikj ik loQA bl fØ;kdyki l lHkor% vkidk ok;eMyh; nkc oQ ifjek.k dk vueku yx x;k gkxkA okLro e] ;fn p"kd rFkk i"B oQ chp e l leLr ok; dk

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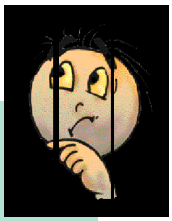
fudky fn;k tk, rk fdlh Hkh eu"; oQ fy, p"kd i"B l [khp dj vyx djuk lHko ugh gkxkA D;k bll vki vueku yxk ldr g fd ok;eMyh; nkc fdruk vfèkd gkrk g\



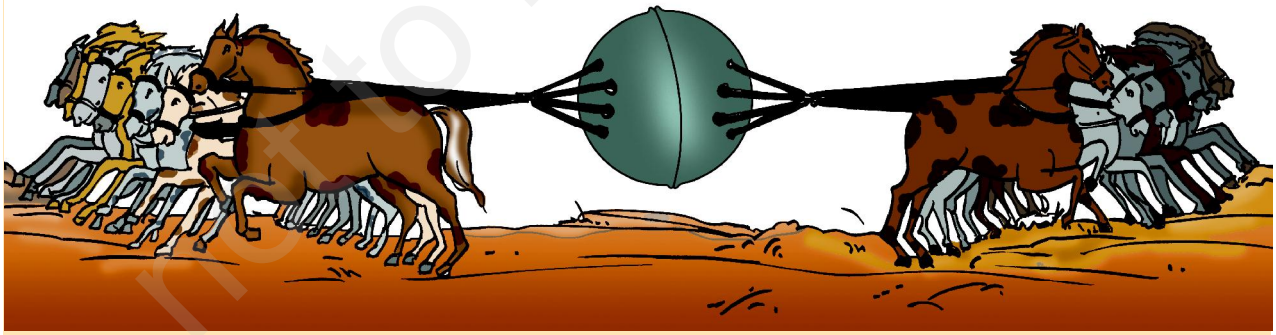
;fn ej flj dk {k=kiQy 15 cm × 15 cm gk rk e viu flj ij ok; dk fdruk Hkkj ogu dj jgk g!

,d 15 cm × 15 cm {k=kiQy rFkk ok;eMy dh Åpkb oQ cjkcj Åpkb oQ LrEHk e ok; dk Hkkj yxHkx 225 kg æ0;eku d fdlh fiM d Hkkj (2250N) oQ cjkcj gkrk g (fp=k 11-19)A bl Hkkj oQ uhp ge nc dj fipd D;k ugh tkr\ bldk dkj.k g fd gekj 'kjhj oQ vUnj dk nkc Hkh ok;eMyh; nkc oQ cjkcj g vkj ;g ckgj oQ nkc dk fujLr dj nrk gA

fp=k 11-19 % vkioQ flj ij ok;eMyh; nkcA

D;k vki tkur g\

17oh 'krkCnh e teuh oQ ,d oKkfud vkVk oku xfjd u cruk l ok; ckgj fudkyu oQ ,d iEi dk vkfo"dkj fd;kA bl iEi dh lgk;rk l mUgku ukVdh; <x l ok; nkc oQ cy dk in'ku fd;kA mUgku èkkr oQ nk [kk[ky vèkxky fy, ftue iR;d dk 0;kl 51 cm FkkA bu xkyk dk ,d lkFk tkMdj muoQ chp dh ok; fudky nh xbA rc iR;d vèkxky ij vkB&vkB ?kkM foijhr fn'kk e [khpdj vyx dju oQ fy, yxk,A (fp=k 11-20)A ok; nkc dk cy bruk vfèkd Fkk fd bru ?kkM Hkh vèkxkyk dk vyx u dj ik,A



fp=k 11-20 % vèkxkyk dk [khpr g, ?kkMA

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ie[k 'kCn

- ok;eMyh; nkc
- lEioQ cy
- fLFkjo|r cy
- cy
- ?k"k.k
- x#Roh; cy
- x#Ro
- pcdh; cy
- i'kh; cy
- vlEioQ cy
- nkc
- vfHkd"k.k ([khpuk)
- vid"k.k (èkDdk nuk)A

vkiu D;k lh[kk

- cy èkDdk nuk (vidf"kr djuk) ;k [khpuk (vfHkdf"kr djuk) gk ldrk gA
- cy nk oLrvk oQ chp vU;kU;fØ;k oQ dkj.k yxrk gA
- cy dk ifjek.k rFkk fn'kk nkuk gkr gA
- fdlh oLr dh pky e ifjoru vFkok xfr dh fn'kk e ifjoru vFkok nkuk e gku oky ifjoru dk vFk g bldh xfr dh voLFkk e ifjoru gkukA
- fdlh oLr ij yxu okyk cy mldh xfr dh voLFkk e vFkok mldh vkÑfr e ifjoru dj ldrk gA
- fdlh oLr ij yxu okyk cy mloQ lkFk lEioQ e vku ij ;k lEioQ e vk, cxj yx ldrk gA
- ifr ,dkd {k=kiQy ij yxu oky cy dk nkc dgr gA
- no rFkk xl cruk dh nhokjk ij nkc yxkr gA
- gekj pkjk vkj dh ok; }kjk yxk, x, nkc dk ok;eMyh; nkc dgr gA

vH;kl

1- èkDd ;k f[kpko oQ }kjk oLrvk dh xfr dh voLFkk e ifjoru oQ nk&nk mnkgj.k nhft,A

2- ,l nk mnkgj.k nhft, ftue yxk, x, cy }kjk oLr dh vkÑfr e ifjoru gk tk,A

3- fuEufyf[kr dFkuk e fjDr LFkkuk dh ifr dhft,µ

(d) oQ, l ikuh fudkyr le; ge jLlh dk _____ iMrk gA

([k) ,d vkof'kr oLr vukof'kr oLr dk _____ djrh gA

(x) lkeku l ynh Vkyh dk pyku oQ fy, ge mldk _____ iMrk gA

(?k) fdlh pcd dk mÙkjh èko nlj pcd oQ mÙkjh èko dk _____ djrk gA

4- ,d èkuèkj y{; ij fu'kkuk lkèkr g, viu èku"k dk [khprh gA rc og rhj dk NkMrh g tk y{; dh vkj c<u yxrk gA bl lpuk oQ vkèkkj ij fuEufyf[kr idFkuk e fn, x, 'kCnk dk mi;kx djoQ fjDr LFkkuk dh ifr dhft,A

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i'kh;@lEio@@vlEio@@x#Ro@?k"k.k@vkÑfr@vkd"k.k

(d) èku"k dk [khpu o@ fy, èkuèkj ,d cy yxkrh g ftlo@ dkj.k] bldh _____ e ifjoru gkrk gA

([k) èku"k dk [khpu o@ fy, èkuèkj }kjk yxk;k x;k cy _____ cy dk mnkgj.k gA

(x) rhj dh xfr dh voLFkk e ifjoru o@ fy, mRrjnk;h cy dk idkj _____ cy dk mnkgj.k gA

(?k) tc rhj y{; dh vkj xfr djrk g rk bl ij yxu oky cy _____ rFkk ok; o@ _____ o@ dkj.k gkr gA

5- fuEu fLFkfr;k e cy yxku oky dkjd] rFkk ftl oLr ij cy yx jgk g] mudk igpkfu,A iR;d fLFkfr e ftl :i e cy dk iHkko fn[kkb n jgk g ml Hkh crkb,A

(d) jl fudkyu o@ fy, uhc o@ VdMk dk vxfy;k l nckukA

([k) nr etu dh V;c l iLV ckgj fudkyukA

(x) nhokj e yx g, gd l yVdh dekuh o@ nlj flj ij yVdk ,d HkkjA

(?k) Åph o@n djr le; ,d f[kykMh }kjk ,d fuf'pr Åpkb dh NM (ckèkk) dk ikj djukA

6- ,d vk
okyk cy ykg o@ VdM dk fdl idkj iHkkfor djrk g\

7- ,d i@yk, g, x@ckj dk lf'y"V diM o@ VdM l jxMdj ,d nhokj ij nck;k x;kA ;g n[kk x;k fd x@ckjk nhokj l fpid tkrk gA nhokj rFkk x@ckj o@ chp vkd"k.k o@ fy, mÙkjnk;h cy dk uke crkb,A

8- vki viu gkFk e ikuh l Hkjh ,d lykfLVd dh ckYVh yVdk, g, gA ckYVh ij yxu oky cyk o@ uke crkb,A fopkj&foe'k dhft, fd ckYVh ij yxu oky cyk }kjk bldh xfr dh voLFkk e ifjoru D;k ugh gkrkA

9- fdlh mixg dk bldh d{kk e iekfpr dju o@ fy, fdlh jko@V dk Åij dh vkj i{kfir fd;k x;kA iekpu ep dk NkMu o@ rjr ckn jko@V ij yxu oky nk cyk o@ uke crkb,A

10- tc fdlh Mkij o@ pp (uk
o@ :i e ckgj fudyrh gb fn[kykb nrh gA cYc ij l nkc gVk yu ij Mkij e ikuh Hkj tkrk gA Mkij e ikuh o@ p<u dk dkj.k gµ

(d) ikuh dk nkc

([k) iFoh dk x#Ro

(x) jcM o@ cYc dh vkÑfr

(?k) ok;eMyh; nkc

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foLrkfjr vfèkxe & fØ;kdyki ,o ifj;ktuk,

1- l[k jr dh yxHkx 10 cm ekVkb dh rFkk 50 cm × 50 cm {k=kiQy dh ,d D;kjh cukb,A lfuf'pr dhft, fd bldk Åijh i"B lery gkA ydMh ;k lykfLVd dk ,d LVy yhft,A xkiQ&iij l 1 cm pkMh nk ifV;k dkfV,A LVy dh fdlh Hkh Vkx ij ,d iVh dk fupy flj ij rFkk nljh iVh dk Åij oQ flj ij fpidkb,A vc èkhj l LVy dk jr dh D;kjh ij bl idkj jf[k, fd bldh Vkx jr ij fVdh jgA ;fn vko';drk gk rk jr dh D;kjh oQ lkb
lhV ij ,d ck>k] tl fdrkck l Hkjk LoQy dk cLrk] jf[k,A xkiQ&iij ij jr oQ ry dk fpÉ yxkb,A bll vkidk Kkr gkxk fd LVy dh Vkx jr e fdruh xgjkb rd èklh gA vc LVy dk myVk dhft, ftll fd bldh lhV jr dh D;kjh ij fVoQA LVy vc ftl xgjkb rd èklrk g ml ukV dhft,A vc fiQj l mlh ck> dk LVy ij jf[k, tk vkiu igyh ckj j[kk FkkA ukV dhft, fd LVy fdruh xgjkb rd jr e èklrk gA nkuk fLFkfr;k e LVy }kjk yxk, x, nkc dh ryuk dhft,A

2- ,d fxykl yhft, vkj bl ikuh l Hkfj,A fxykl oQ eg dk ikLVdkM tl ,d ekV dkM l <fd,A ,d gkFk l fxykl dk idfM, rFkk nlj gkFk l dkM dk bloQ eg ij nck dj jf[k,A dkM dk gkFk l nckr g, fxykl dk myVk dhft,A lfuf'pr dhft, fd fxykl Åèokèkj jgA dkM ij yxk, g, gkFk dk èkhj l gVkb,A vki D;k n[kr g\ D;k dkM uhp fxjrk g vkj ikuh fc[kj tkrk g\ FkkM vH;kl oQ i'pkr vki n[kx fd dkM dk lgkjk nu oky gkFk dk gVk yu ij Hkh dkM fxjrk ugh vkj ;g ikuh dk fxykl e jkoQ j[krk gA bl fØ;kdyki dk dkM oQ LFkku ij diM dk i;kx djoQ] dju dk i;Ru dhft, (fp=k 11-21)A

fp=k 11-21

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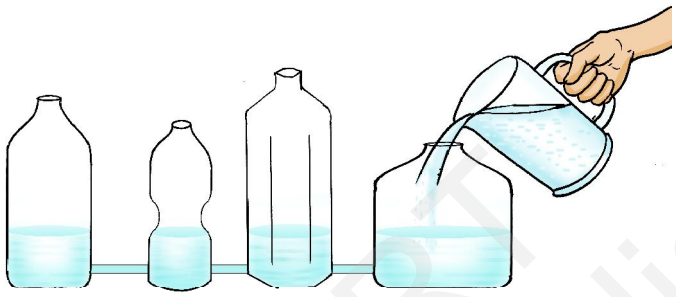
3- fofHkUu lkb

vulkj bUg dkp ;k jcM dh V;c oQ NkV VdMk l tkfM,A bl 0;oLFkk dk ,d lery lrg ij jf[k,A vc fdlh Hkh ,d ckry e ikuh Mkfy,A nf[k, fd ftl ckry e ikuh Mkyk x;k g] og igy Hkjrh g ;k lHkh ckry lkFk&lkFk Hkjrh gA lHkh ckryk e ikuh oQ ry dk le;≤ ij ukV dhft,A viu i{k.kk dh 0;k[;k dju dk i;Ru dhft,A



fp=k 11-22

cy rFkk nkc oQ fo"k; e vf/d tkudkjh oQ fy, fuEu oclkbV nf[k,µ

- www.glenbrook.k12.il.us/gbssci/phys/class/newtlauws/u2l2a.html
- www.hatesville.k12.in.us/physics/phyNet/Mechanics/Newton2/Pressure.html
- kids.earth.nasa.gov/archive/air_pressure/

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