21 #jjuqfs

,gghljijf fwgjD}lhf ehqfs.....

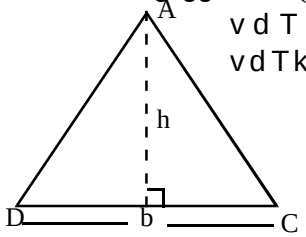
- thff%yjJldhd #jjuqfsd vOthafis khwWNthk.
- #jjuqfsYss khwfSfFg ngWkhdqfis gujaL nraNthk.
- rkdghLfisg gadgLjj guridqfisj jhgNghk.

(i) KfNfhzpahdwpd guggsitf fhzgjwfhf eqfs gadgLjjpa #jjpujij QhgfggLjJNthk.

KfNfhzpad guggsT

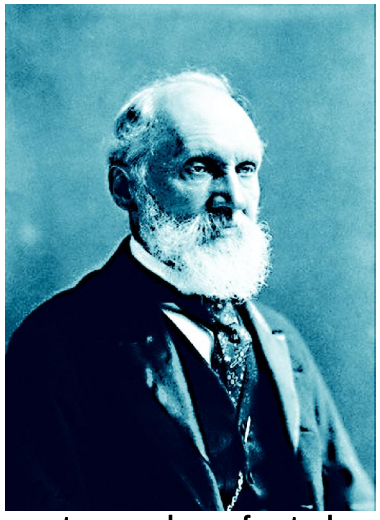
$$= \frac{\text{mbapd esk} \times \text{nrqFjJ cauk}}{2}$$

guggsit (Area) A vdTk› mb (Base) b vdTk› nrqFj Jaujij h vdTk nfhzlhy›



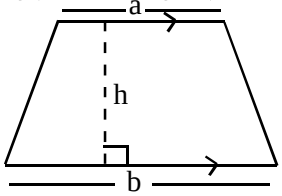
$$A = \frac{bh}{2}$$

vDk #jjpujijg ngwWf nfhss KbAk.



tpypak; nfytpd;

#jjpujjpy b"h vdgdtwWfFg ngWkhdqfisg gujaL nratjd %yk A ,d ngWkhdjijf fhzKbAk.



(ii) rhtfjjpd guggsitf fhzgjwFg gadgLjJk #jjpujij QhgfggLjJNthk.

rhtfjjpd guggsit A vdTk› rkhejug gffqfspd esqfis a"b vdTk› rkhejug gffqfSf fpilapyhd nrqFjJaujij h vdTk nfhzlhy›

$$A = \frac{\text{,U rkhejug gffqfspd \$lLjnjhif} \times \text{rkhejug gffqfSf fpilapYss nrqFjJauk}}{2}$$

$$A = \frac{(a+b)h}{2} \text{ vd #jjpukhf vOjKbAk.}$$

,r #jjpujjpd vOtha A MFk.

,qF vOthia khwWtjwF myyJ vOthafF ch‰a ngWkhdjij fhzNtzb VwgLf‰dwJ.

nrawghL I

$A = \frac{bh}{2}$ vDk #jj‰ujj‰y h I vOthahf khwWNthk.

gbKiw 1

rkdghlbd ,UgffKk 2My ngUfFNthk.

$2A = bh$

gbKiw 11

h I vOthahf khwWtjwF rkdghlbd ,UgffKkb My tFgNghk.

$\therefore h = \frac{2A}{b}$ Kjyhtj #jj‰ujj‰y h I vOthahf khwWk Kiw gww‰ mw‰ejhfs. ,tthwhd vs‰a #jj‰uqfs‰d vOtha khwwk gww‰ eqfs 9k tFgg‰y fwWsshfs.

nrawghL 2

ngsjf t‰QQhdk› cahfz‰jk Mf‰a ghlqfs‰y gadgLjjggLk Ntfk› gaz‰jj J}uk njhlhghf #jj‰uk fNo jugglLssJ.

$v^2 = u^2 + 2fs$

,r #jj‰uk thffjJldhd cWgigf nfhzLssJ. ,r #jj‰ujj‰y v^2 vOthahf cssJ. ,j‰y v I vOthahf khwWtjwF ahJ nraa NtzLk? fNo jugglLsstwiw mtjhd‰Aqfs.

(i) $x^2 = 9$	(ii) $T^2 = 12$	(iii) $y^2 = 196$	(iv) $a^2 = 25$
$\sqrt{x^2} = \sqrt{9}$	$\sqrt{T^2} = \sqrt{12}$	$\sqrt{y^2} = \sqrt{196}$	$\sqrt{a^2} = \sqrt{25}$
$x = 3$	$T = \sqrt{12}$	$y = 14$	$a = 5$

(,qF kiwg ngWkhdqfs fUjggl t‰y iy)

NkNy jugglLsstww‰d %yk thffjJldhd cWgig vOthahf khwWtjwF ,UgffKk thff%yk fhzNtzLk.

, j dgb $v^2 = u^2 + 2fs$ vDk #j jukjd ,U gffKk thff%yk fhz Nghk.

$$\sqrt{v^2} = \pm\sqrt{u^2 - 4fs}$$

$$\therefore v = \pm\sqrt{u^2 - 4fs}$$

nrawghL 3

tllk xdwd guggsT $A = \pi r^2$ MFk. ,r#j jukjYss r l vOthahf khwWNthk. $\pi r^2 = A$

,UgffKk π My tFgNghk. $r^2 = \frac{A}{\pi}$

r l vOthahf khwWtjwF ,UgffKk thff%yk fhz Nghk. $r = \sqrt{\frac{A}{\pi}}$ MFk.

(,qF rvOthahf khwwggl Lss J.&

fNo juggl Lss #j jukqfSfF vjNu milggDs juggl Lss cWgGffis vOthahf khwWqfs.

(i). $W = IR$ (I)

(ii). $T^2 = \frac{4\pi^2 l}{g}$ (T)

(iii). $v^2 = 2gh$ (v)

(iv). $A^2 = \frac{1}{4}b^2 (a^2 - b^2)$ (A)

(v). $v = \frac{1}{3}\pi r^2 h$ (r)

(vi). $m^2 = \frac{l}{x} - n$ (m)

(vii). $v = \pi r^2 h$ (r)

(vii). $S = 4\pi r^2$ (r)

(ix). $A = \pi (R^2 - r^2)$ (r)

(x). $K = \frac{1}{2}Mv^2$ (v)

cjhuzk 1

$r = \sqrt{\frac{V}{\pi h}}$,r#j jukjy tY ,yiy. vdDk thff%yk fhzggLfdwJ. ,r #j jukjy V l vtthW vOthahf khwWtJ? ,qF V ,UggJ thff%yjjDs MFk. ,jdhy Kjyy thff%yjij efFjy Ntz Lk.

fNo juggl Lsstwiw mtjhdpAqfs.

(i) $\sqrt{x} = 6$

$\left(\sqrt{x}\right)^2 = 6^2$

$x = 6^2$

(ii) $\sqrt{PQ} = T$

$\left(\sqrt{PQ}\right)^2 = T^2$

$PQ = T^2$

(iii) $\sqrt{\frac{x}{y}} = P$

$\left(\sqrt{\frac{x}{y}}\right)^2 = P^2$

$\frac{x}{y} = P^2$

$r = \sqrt{\frac{v}{\pi h}}$,d thff%yjij efFtjwF ,Ugffkk thffpgNghk.

$r^2 = \left\{\left(\frac{v}{\pi h}\right)^{\frac{1}{2}}\right\}^2$

$\therefore\ r^2 = \frac{v}{\pi h}$

$v = \pi r^2 h$

cjhuzk 2

$A = \frac{b}{2}\sqrt{a^2 - b^2}$,r #jpujpYss a I vOthahf khwWqfs. a ,UggJ thff%yjpy MFk. ,jdhy Kjypy thff%yjij efFNthk.

$A = \frac{1}{2} b \left(a^2 - b^2\right)^{\frac{1}{2}}$,U gffkk thffpAqfs. $A^2 = \left(\frac{1}{2}b\right)^2 \left\{\left(a^2 - b^2\right)^{\frac{1}{2}}\right\}^2$

$A^2 = \frac{b^2}{4}(a^2 - b^2)$

$4A^2 = b^2 (a^2 - b^2)$

,Ugffkk b^2 My tFgNghk. $\frac{4A^2}{b^2} = \frac{b^2\left(a^2 - b^2\right)}{b^2}$

$\frac{4A^2}{b^2} = a^2 - b^2$ vdpd a^2 I vOthahf khwWtjwF ,U gffKk b^2 If $ILNthk.

$$a^2 = \frac{4A^2}{b^2} + b^2$$

a I vOthahf khwWtjwF ,U gffKk thff%yk fhzNghk.

$$\sqrt{a^2} = \sqrt{\frac{4A^2}{b^2} + b^2}$$

$$a = \sqrt{\frac{4A^2}{b^2} + b^2}$$

cjhuzk3

$y = \frac{2}{3}\pi\left(a^3 - r^3\right)$,y r I vOthahf khwWNthk.

,UGwKk 3 My ngUffNthk

$3y = 2\pi\ (a^3 - r^3)$

$3y = 2\pi a^3 - 2\pi r^3$

$2\pi r^3 = 2\pi a^3 - 3y$

$$r^3 = \frac{2\pi a^3 - 3y}{2\pi}$$

r I vOthahf khwWtjwF ,UgffKk fd%yk fhzNghk

$$r = \sqrt[3]{\frac{2\pi a^3 - 3y}{2\pi}}$$

gawr 21'2

fNo jugglLss #jjuqfs d vjNu jugglLss cWgGffis vOthahf khwWqfs.

(i). $I = \sqrt{\frac{W}{R}}$ (W) (ii). $V = \sqrt{2gh}$ (g)

(iii). $r = \sqrt{\frac{3V}{\pi h}}$ (V) (iv). $R = \sqrt{\frac{S}{4\pi}}$ (S)

(iv). $m = \sqrt{\frac{l}{x} - n}$ (n) (vi). $x = -b \pm \sqrt{b^2 - 4ac}$ (a)

(vii). $\sqrt{\frac{v}{\pi h}} = r$ (h) (viii). $\sqrt{\frac{4\pi^2 l}{8}} = T$ (*l*)

#jjujjYss khwfSfF ngWkhdqfisg gujaL nrajy.

a = 3cm , b = 8cm , h = 4cm vdd $A = \frac{(a+b)h}{2}$ #jjujjYss A ,d ngWkhdj ijf fhzNghk.

$$A = \frac{(3+8)4}{2}$$

$$= \frac{(11) \times 4^{2}}{2}$$

$$A = 22cm^2$$

cjhuzk3

g = 12 , h = 3 vdd› $v^2 = 2gh$,y v ,d ngWkhdj ijf fhzNghk.

$$v^2 = 2gh$$

$$v = \sqrt{2gh}$$

$$v = \sqrt{2 \times 12 \times 3}$$

$$v = \sqrt{72}$$

$$v = \sqrt{36 \times 2}$$

$$v = 6\sqrt{2}$$

fNo jugglLss xtnthU #jjujjwFk jugglLss ngWkhdqfisg gujaL nraJ ngah Fwggl Lss cWgGffsd ngWkhdqfisf fhzf.

(i) w = 60, I = 1.5, vdd w = I^2R " (R)

(ii) $\pi = \frac{22}{7}$ r = 7, h = 12 Mad", $v = \frac{1}{3}\pi r^2 h$, (v)

(iii) $\pi = \frac{22}{7}$, v = 3.5, h = 15 Mad" $v = \pi r^2 h$, (r)

(iv) a = 8, b = 6 Mad $A^2 = \frac{1}{4}b^2(a^2 - b^2)$" (A)

(v) m = 6, l = 60, x = 4 Mad" $m^2 = \frac{l}{n} - n$" (n)

(vi) b = 8, a = 6, c = 2 Mad" $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ " *(x)*

(vii) $Sn = \frac{n}{2}(a + l)$, y

(i) Sn = 480, n = 12, l = 62 ck vdd a, d ngWkhdj ijf fhzf.

(ii) Sn = –1220, a = 28, l = –89 ck vdd n lf fhzf

#jjuj ijg gadgLjj gurdqfisj jhjjy.

tll tbthd ikjhdnkhdwd Miu 21m MFk. ikjhdjjy Gy tshff 1 rJu kwwUfF &gh 60 nrythfdwJ. ikjhdk KOtJk Gy tshggjwF nrythFk gzjijf fhZqfs. $\left(\pi = \frac{22}{7} \text{ vdf nfhsf.}\right)$

tlltbthd ikjhdjjd guggsT A = πr^2

$= \frac{22}{7} \times 21 \times 21$

$= 22 \times 63$

$= 1386 \text{ m}^2$

1 rJu kwwUfF &gh 60 tjk VwgLk nryT = 60 × 1386

= &gh 83160 MFk.

gawr 21'4

(1) tll tbthd G+gghjjpnahdwpd Miu 3.5m MFk. G+gghjjpia Rwwp 3 epiuapy fkgp Ntyp mbff Ntzb A s s J. xU kwwh fkgpapd tpiy &gh 8 vdpd ,jwfhd nryitf fhZqfs.

^$\pi = \frac{22}{7}$› RwwsT (c) = $2\pi r$ lg gadgLjJqfs.&

(2) rhptf tbthd fhlNghl mlilapd ,U rkhejuggffqfspd esqfs KiwNa 5m" 7m MFk. rkhejuggffqfs ,uzLfFk ,ilapyhd nrqFjJauk 4m MFk. rhptfjjpd guggsitf fhZqfs.

(3) $kG tbthd jpzknkhdwpd Miu 7cm MFk. mjd nrqFjJauk

12cm ck› $\pi = \frac{22}{7}$ vdfnfhzL $kgpd fdtsitf fhzgjwfhd

#jjpuk $v = \frac{1}{3}\pi r^2 h$ lg gadgLjjpf $kgpd fdtsitf fhZqfs.

(4) ruhd FWfF ntlL KfjijAila cUis tbthd jpzkjjpd fdtsT $176cm^3$ MFk. jpzkjjpd cauk 14cm MFk. cUisapd Miuiaf fhZqfs.

^cUisapd fdtsit $v = \pi r^2 h$ vDk #jjpujjpy gpujpaL nraAqfs. $\pi = \frac{22}{7}$&

rhuhkrk

★ xU jdp cWggpwF (xU mlruk) rkggLjjgglLss mlrufzpjf Nfhit #jjpuk vdggLk.

★ rkggLjjgglLss xU jdp cWgG mr#jjpujjpd vOtha vdggLk.

★ #jjpujjpd xU khwpiaj jtphej Vida khwpfSfF ngWkhdqfs juggllhy› gpujpaL %yk njhpahf fzpajjpd ngWkhdjijf fhz KbAk.