



m<d; a wOHdmk fomd³/₄; fi ka j

W; fe m<d;

m<d; a uÜgfi wj i dk fmdj j dr mrd l Kh 2014
. Kş htl



fYKh 11

I d, h meh fol yudrhs

úNd. wxl h

, l Kq

100

- * A fl dgfi kam%k myl ÷ aB fl dgfi kam%k myl ÷ af; drdf. k m%k oyhl g mşş fe i mhkk;
- * i Eu m%khl g u , l Kq10 ne. kayñ fõ;
- * m; f, awrh ro Wi h o j k Rcqj D; a dl dr >k i ş kavrhI mrsudj $\pi r^2 h$ fj hş
- * m; f, awrh ro Wi h o j k Rcqj D; a dl dr >k fl a j l mrsudj $\frac{1}{3} \pi r^2 h$ fj hş

A - fl dgi

m%k myl g muKl amşş fe i mhkk;

Q1) a) I  dr i ud. ul remh, a10 fl dgi aremh, a16 ne. kañ, oS. ekşug remh, a48 000 l up, l a wdfhdckh l f<ah; Tyg j i r wj i dkfha, enKqwdodhu remh, a33 00 fõ;

i) I  dr ñ, g . ; afl dgi ai xLHdj fl dmuK o@

ii) fl dgi j , uę kdñl w. h fi dhkk;

iii) i ud. u , nd ýka, dNdxYfham% Ş; h fi dhkk;

iv) I  dr fl dgi añ, oS. ekşu i |yd wdfhdckh l < up, 8% l i ę fmd<hl a , nd fok nexl j l ; ekm; al f<aki tl aj i rl g , efnk fmd<h fl dmuK o@

v) , dNhl af. k f. k fokfkanexl fõ ; ekm; al ru o ke; fyd; afl dgi awdfhdckh l rşu o hkk fya =ol j kk;

b) K j i l j d%l ş j ákdl u 50 000 fõ; m%foylh i Ndj g l d%; j l ai |yd j rmki 1500 l af. j hş

i) f. úh hq =j d%l ş j rmki fl dmuK o@

ii) tu j rmkfi m% Ş; h fi dhkk;

Q2) $y = -x^2 + 4x + 3$ Y% fham% a drh we|şug i l i al < m%K fkdj qj . j l amy; oel fj hş

x	-1	0	1	2	3	4	5
y	-2	3	6		6	3	-2

a) i) $x = 2$ j Yfhka; fnk úg y ysw. h fi dhkk;

i) i yi qmrsudKhl af; drdf. k by; i |ykaY% fham% a drh w|kk;

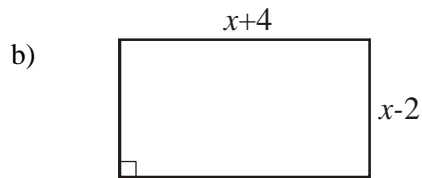
b) Tn úi kaw|k , o m% a drh wei rka

i) i uñ; ş wl d fhai ol rKh fokk;

ii) j ³/₄; k , l d HfhaLKavdxl , hkk;

- iii) by; ol j d we; sY% h $y = 7 - (x - 2)^2$ hk rEmfhkafmkj d oh yel soehsfmkj kki;
 iv) fi u. ka $\sqrt{7}$ ysw. h fi dhkkj

Q3)a) i $\frac{a^2 - b^2}{a + b}$ l rkkj



rEmfhaol j d we; sRcfl dKdi fhaos tysm<, fukafo. Khl aföj

- i) rEmfhaol j d we; so; a wkj i r, i ol rKhl a, nd. kki;
 ii) tu i ol rKh úi |ú u. kaRcfl dKdi fhaos yd m<, fi dhkkj
- c) $x^2 - 6x - 4 = 0$ hk i ol rKh j $\frac{3}{4}$. mKfhkafyda fj k; al hhl aNdú; d l r úi |d mss \neq m<uqoyui a dkhg kj eroj fokki; ($\sqrt{13} = 3.606$ hehsi , l kki).

Q4)i) i dOl fi dhkkj

$$ab + bc + a^2 + ac$$

- ii) Rcfl dKdi hl mrrñ; h 40m>fj h; tys os 5m kawvql r m<, 3m ka tl ; =l rk úg j $\frac{3}{4}$. M, h 9m² kawvqúh;
 a) os a f, i o m<, b f, i o f. k i yi qi ol rKhl af. dv k. kki;
 b) th úi |ú u. kaRcfl dKdi fhaos yd m<, fi dhkkj
- iii) úi |kki

$$\begin{pmatrix} x & -2y \\ 3 & 4 \end{pmatrix} + \begin{pmatrix} 2 & -3y \\ 1 & 2 \end{pmatrix} = \begin{pmatrix} 3 & 5 \\ 4 & 6 \end{pmatrix} \text{ Mapd;}$$

x, y fi dhkkj

Q5)a) A . j ka f; dgmf, ka 120° os xYhl ka mg; j k . j ka hdkhl a 600 km . uka fl dg B . j ka f; dgmf, g <Öd úh; B . j ka f; dgmf, ka 240° os xYhl ka 600 km ýrl ka C . j ka f; dgfmd, msygd we; j

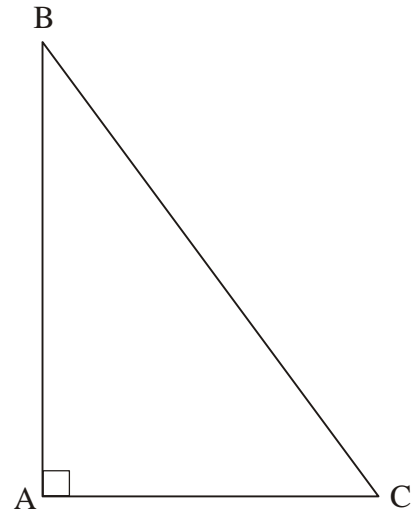
- i) ošwe; so; a krEmKh l rú i |yd o< rEm i gykl aw|kki
 ii) fuu o; a oel úu i |yd mruDK rEmhl aw|kki
 (mruDK h 1 : 10 000 000)
 iii) mruDK rEmh wei frkaA i g C ol j d we; syr fi dhkkj

b) AB i ri al 3 Khl 3 A i g 30m ýri ka mygd we; sC , l d Hfhai g krd d Kh l rkfkl =B ol kfha 70° l wdfrdyK fl dKhl k3

i) o; a rEm i gyfka, l Kql r fmkj k3;

ii) ; 3l dKñ; 3 oekp Ndú; d l r l 3 fkaWi fi dhk3;

iii) fmdf<dj uÜgfi i g l 3 fka wv mx. =ýri ka D keu; s, l d Hhl awe; j C, l d Hfhai g n, k úg D yswdfrdyK fl dKhl fi dhk3;



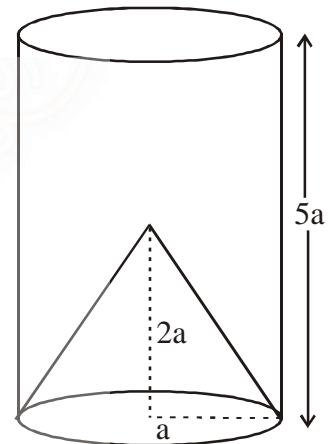
Q6)a) m; f, awrh a o Wi 5a o j k i 3 k3rdl dr , Sl | l ka tu wrh j lo 2a Wi o j k fl a =yeve; sfl dgi l aydrd . kq , eì K3

i) i 3 k3rfhamrudj π, a wei rka fi dhk3;

ii) fl a fõ mrudj π, a wei rka fi dhk3;

iii) b; rs>kfhamrudj $\frac{13\pi a^3}{3}$ nj fmkj k3;

b) , >q. Kl j . j Ndú; d l r w. h fi dhk3;



$$\frac{6.783 \times \sqrt{0.0945}}{(1.25)^2}$$

B fl dgi

m3s 3e myl g muKl am3s 3e i mhk3;

Q7)a) fj i l aW; á j h i | yd i dok , o fj i l al 3q>kdl dr ^>kl hl wdl dr& yevh . kh3 tj dfha Wi 30cm, 45cm, 60cm hkdo3j Yfhkaol kg , eì K j

i) fuu Wi l 3k fYKhl ; fí o@

ii) fuu rgdfõ 10 j eksl 3fõ Wi fl dmuK o@

iii) fi wdl drfhafj i l al 3q15 l ayi a ekl afkdue; j tl <Õg tl l aj k mrõstl u i r, f3Ldj l aof. afm3hg ; fí j tu l 3q15 u 20m os l wvq al < yel snj m% dY fl f3; fuu m% dYh i ; Hh o hkk fmkj k3;

b) fK3i fmdl Kl we; smq m m<uqokfha ; snk mq m fukafo. Khl aB<Õ okfha ; fí j m<uqokfhamq m 12 l aol kg , enfKaki 6 j k okfha ; 3 h yel smq m i xLHdj fl dmuK o@

- Q8) cm/mm mruðK h i ys i r, Þrhl ayd l j l ggi l amuKl aNdú; d l r k¾udK f¾Ld meyeos j ol j ñka
- 6cm os AB kí i r, f¾Ldj l ak¾udK h l rkkj
 - $BAC = 60^\circ$ j k o $AB = AC$ j k f, i o mygk AC i r, j f¾Ldj k¾udK h l rkkj
 - AB, AC f¾Ldj kaysi g i utk ýrl kap, kh j k , l d Hfham: h k¾udK h l rkkj
 - AB f¾Ldj B yso AC f¾Ldj C yso i m¾Y l rk j D; a h k¾udK h l rkkj
 - j D; a fhafl kòh O f, i kí l r ABC j D; a p; Æ i ðal anj fmkj kkj
 - , l d Hh A, B, O, C hkdoh yryd hk j D; a h k¾udK h l rkkj

- Q9) . i mfoayhl i ák mj q a 50 l a khñ; udi hl mrsfNdckh l < úohq a td l i xLHdj my; wkouug oel fõj

mrsfNdckh l < td l	31 -40	41 -50	51 -60	61 -70	71 -80	81 -90	91 -100
mj q ai xLHdj	3	7	9	11	10	6	4

- jeä u mj q ai xLHdj l aNdú; d l < úohq a td l j , ud; h l eil ao@
- 61-70 hk mka smkka rfhaúOH w. h Wml , ms uOHKH f, i f. k mrsfNdckh l < td l j , uOHKH fi dhkkj
ms s Æ wdi kku ug i xLdj l kafokkj
- fi wdl drfhamj q a 100l amrsfNdckh l < úohq a td l i xLHdj fl dmuk oe
- by; i |ykal < mj q amrsfNdckh l < Wmru úohq a td l 3500 l g j vd wél úh yel s nj úYj di fl f¾j fuu m% dYh i ; H úh yel snj fmkj kkj

- Q10) rEmj dykh kerou úfkdxY l r . ; a 50 fofkl Æ. ka Tj ka krUK j evi gyka i i nkDj fi dhne, fi os35 fofkl afg, skdgH krUK nj o 18 fofkl am% D; a skrUK nj o 21 fofkl a i x. \$ j ev i gyka krUK nj o mej i Qy; 8 fofkl a i x. \$ j evi gykayd m% D; a shk j ev i gyka fol u krUK nj o mej i Qy; fg, skdgH yd m% D; a skrUK 12 fofkl Æ. ka 7 fofkl a i x. \$ j ev i gyka krUK f kake; i 9 fofkl a i x. \$ j ev i gykayd fg, skdgH hk fol muKl a krUK nj mej i Qy;

- by; oel fj k f; dr; Æ fj karEm i gykl i |ykal rkkj
- j ev i gyka; ku krUK fkdal S fofkl ao@
- by; i |ykej evi gykaw; Æ ka tl l afyda fkdkrUK fkdal S fofkl ao@
- by; i |ykawh w; Æ ka fl fkl a i i Ndú f, i f; dard . kq, enfõ kí tl aj ev i gykl a muKl a krUK fkl = ùfi i i Ndú; dj l eil ao@
- by; ol j d we; s fj karEm i gyfka m% D; a syd i x. \$ j ev i gyka fol u krUK fg, s kdgH fkdkrUK wh karEmKh l r ol j k mfoayh w=rel r ol j kkj

Q11) a) p ; q i h l ai udka rdi h l a u g ; f nk fl dkfoi s
w; k af l dkfoi sfol l ai | ykal rkkj

b) ABCD i udka rdi h l afj h s BC ys uOH , l d Hh

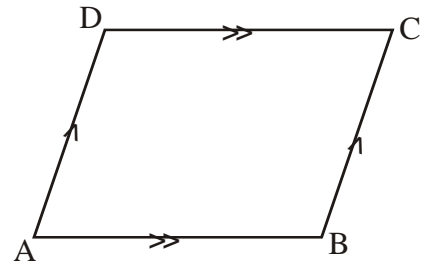
P fj h s ol al $<$ AB yd DP E ys yufj h s

i) rEmh mgm; al r o s we; so; a i gykal rkkj

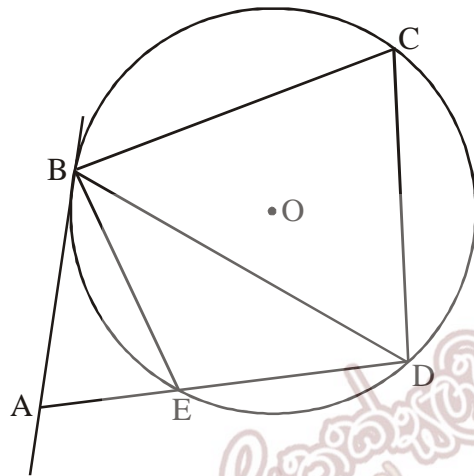
ii) $BPE\Delta \equiv DPC\Delta$ nj fmkj kkkj

iii) BECD i udka rdi h l anj fmkj kkkj

iv) $DCE\Delta$ ys j $\frac{3}{4}$. M, hg yd ABCD ys j $\frac{3}{4}$. M, h w; r we; si i nkD; dj h l e l ao@
fy a j l e l ao@



Q12)



by; o s we; sO fl k o h j Qj D; a hl m s yg d we; s, l d HB,C,D,E fj h s AB i m $\frac{3}{4}$ Yl h fj h s BE
hk $\hat{A}BD$ ysi uE fP ol h fj h s

i) BDE g i udk fl d k hl aki l rkkj fy a j ol j kkkj

ii) $BE = ED$ nj fmkj kkkj

iii) $\hat{BCD} = 2\hat{ABE}$ nj fmkj kkkj.

iv) $ABE\Delta, ABD\Delta$ hkdo h i ufl d k l ; fl d k nj fmkj kkkj

v) $\frac{BD}{BE}$ g i udk wk o nd; hl a, hkkj