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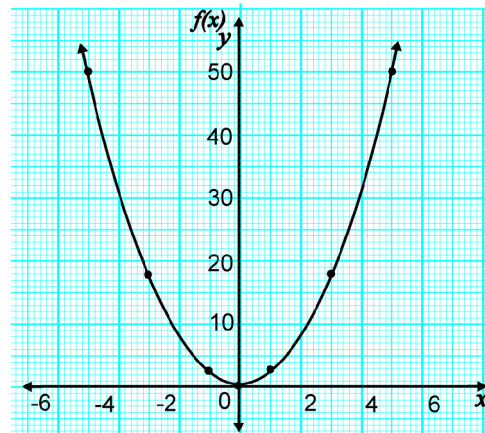
ti uGfs;



, ggjl j; i j f; fwgj D}l hf ehq,fs;....

- ◆ , Ugr; rhhGfs;pd; ti uGfi s mwpe;JnfhsNthk;
- ◆ $y = ax^2 + b$ vDk; , Ugr; rhhgpd; ti uGfs;pd; gz Gfi s mwNthk;
- ◆ ti unghdwp; rkrh; mri r mwpe;JnfhsNthk;
- ◆ ti ugpd; c ah;Tg; ngWkhdk; , opTg; ngWkhdk; Mfpatwi wf; fhz Nghk;

, U fz paq;fS f;fpi l apYs; nj hl hGfi sj; nj spthf mwpe;J nfhs;tj w; Fk; nj hl hGgLj ;J tj w;Fk; ti uGfi sg; gad;gLj j pa Ki wfi sAK; gy;NtW ti fahd ti uGfi sg; gwwpAK; eb,fs; , j wF Kddh; mwpe;Jsshf;fs;



eb,fs; 9 Mk; j uj j py; fww NehNfhl L rhhGfs; gwwpAK; mtwvpc; ti uGfs; gwwpAK; , Ugr; rhhGfs;pd; ti uGfs; gwwpAK; fwgJ mtrpakhfpc;wJ. rhhGfs;pd; ti uGfi s ti utj w;Fj; Nji tahd x, y vDk; khwpfS f;fpi l apYss nj hl hGfi sAK; Ms;\$wWj; j sj j pc; kU Gss;fpi sf; Fwpe;Fk; Ki wfi sAK; c ssl f;fpa gapwpi ar; nraNthk;

gapwpi 23'1



- (1) Ms;\$wWj; j snkhdp; fNo j uggL Lss thpi rggl l Nrhhbfshy; fhl l ggLk; Gss;fpi sf; FwpgNghk;

$(-2, 4), (-1, 3), (0, 2), (1, 1), (2, 0), (3, 1)$

- (2) $x = -3$ $x = -2$, $x = 0$ $x = 1$ Mapd;

(i) $y = x + 3$ vDk; rkdghl by; guj papl L y , wfhd ngWkhdqfi s vOJf.

(ii) NkNy j uggL Lss x , d; ngWkhdqfi s $y = 2x - 1$, y ; guj papl L y , wF fpi l f;Fk; ngWkhdqfi s vOJf.

$y = x^2$ vDk; rhhgpd; ti ui g ti uj y;

, rhhgpd; ti ui g ti utj wF x , d; ngWkhdqfi s rkdghl by; gup jal nraJ y , d; ngWkhdqfi sf; fhz Nghk; mtwi w fNo j uggl LSsthW ml; ti z ggLj; JNthk;

x	-4	-3	-2	-1	0	1	2	3	4
y	16	-	4	-	0	1	-	9	-

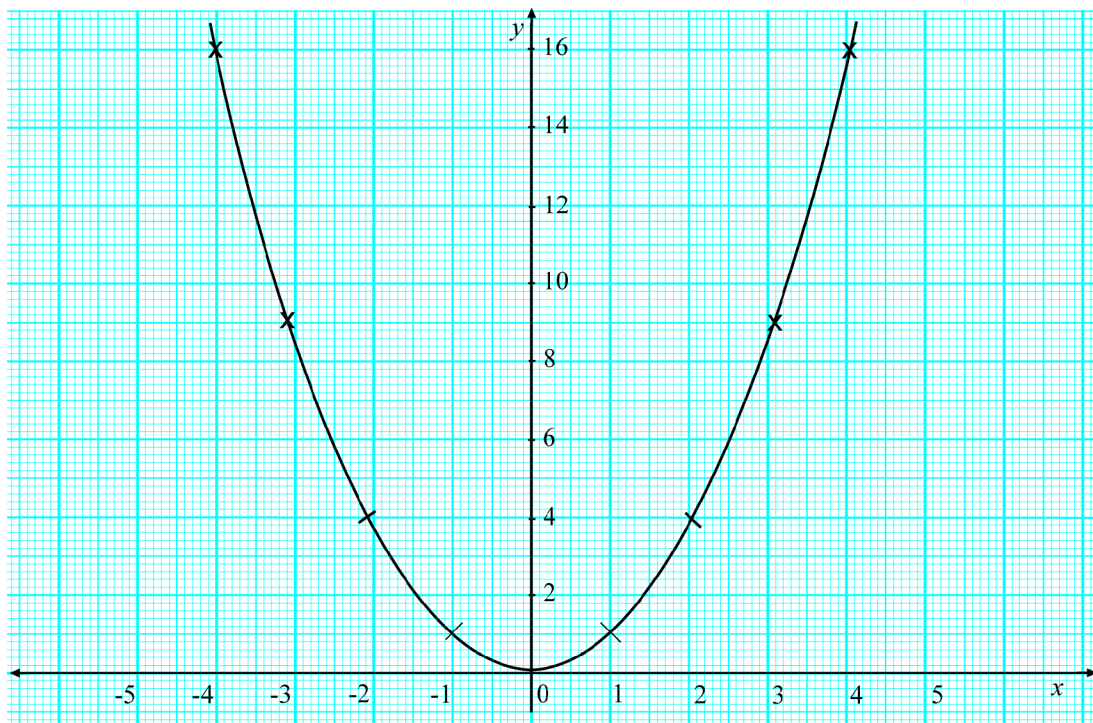
ml; ti z apYss ntwwl qfi s epugGf.

, t;tl; ti z i a mtj hdpf;FKNghJ y , d; ngWkhdqfs; ; grrpaj j p;UeJ Neh; ngWkhdqfs; khj j uk; ngWtNj hL ki w vz ;fs; , yi ynadgJk; nj s;pthf;pdwJ.

, j dgb Ms;\$wWj; j sj j py; x mrR fNo Fw;pf;fggLtNj hL y mri r x mrrpy; c ss 0 Gss;pa;D} hf y , d; ngWkhdqfs; NehngWkhdqfshf , UfFkhW ti uAqfs; , Ugr; rhhGfs;py; x mrR to;Na Xh; myi ff; Fw;ggj wF xU fl; j Kk; y mrR to;Na , U myi ff; Fw;ggj wF xU fl; j Kk; mst;pi lahff; nfhz L ti ui g ti utJ , yFthFk; ml; ti z apYss Gss;pi s Ms;\$wWj; j sj j py; Fw;Aqfs;

$y = x^2$ vDk; rhhgpd; Gss;pi s; mi dj ;Jk; xNu NehNfhl by; mi kahJ. ngdrpi yg; gadgLj j p Rahj Bkhf i ffs;pdhy; Gss;pi s , i z j J ti ui g ti uAqfs; gy ti uGfi s , t;thW Rahj Bkhf ti utj d; %yk; guti sapi a ti uAk; j pwi dg; ngwWfnfhs;t;hfs;

j ahhp;f;ggL ml; ti z ap; gb $y = x^2$ vDk; ti uG fNo fhl; j ggl LSSJ. . t;thwhd tbt; k; auti sai (**Parabola**) vdaaLk;



nrawghL - 1

ti ugpd; kL j pRf; flj hrpi a i tjJ ti ui gg; gpj p nraAqfs; j pRf; flj hrpi a kbggj d; %yk; guti sajad; rkrhfNfhL i l f; fhZ qfs; j pRf; flj hrpi a kL Lk; t h j J ti ugpd kL i tjJ rkrhfNfhL vfNfhL bd; kL fhz ggLf pdwJ vdgi j f; fz l wpAqfs;

rkrhf; NfhL

, tti uG rkrhf mi ktJ y mrrp; MFk; , j dgb rkrhf; mrrhdJ (Axis - of symmetry) y mrR MtJl d; mj d; rkdghL $x=0$ MFk; NehNfhL ti ugpy; gbj j pwi dg; ngww Ki wapy; guti sajad; gbj j pwi dg; ngw KbahJ. Vnddpy; guti sajad; Nky; xtnthU Gs;spfs;Yk; gbj j pwi dg; t j j pahrkhd ngWkhdqfi sf; nfz bUfFk;

, opTg; ngWkhdk;

ml l ti z i aAk; ti ui gAk; mtj hdj j hy; x , d; ngWkhdk; -4 , UeJ +4 ti u Ki wahf mj pfh j J r; nry;YkNghJ y , d; ngWkhdk; 16 , yUeJ 0 ti u Fi weJ kL Lk; 16 ti u mj pfh j J r; nry;fpdwJ. , j dgb $y = x^2$ vDk; rhhgpd; kpf; Fi wej ngWkhdk; myyJ , opTgngWkhdk; 0 MFk;

x , d; ngWkhdk; -4 , yUeJ +4 ti u gyNtW ngWkhdqfi s vLf;FkNghJ y ngWkhdqfs; nry;Ykghi j $x=0$ Gs;spay; khwwki leJ kL Lk; j pUkgp; nry;ti j eb;fs; mtj h d p f f K bAk; , gGss; j pUkgw; Gss; vd mi of;fggLk;

j pUkgw; Gss;pad; Ms;\$Wfi sg; ghll rj j G; ghUqfs; mi t (0, 0) vd mi kAk;

∴ j pUkgw; Gss;pad; Ms;\$Wfs; (0, 0) MFk;

$y = x^2$ vDk; rhhgpd; ti uG %yk; eb;fs; ngww Kff;pa t p l aqfi s kL Lk; epi dTgLj J qfs;

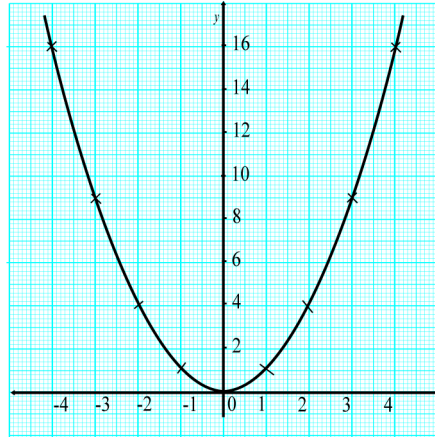
rhhgpd; rkrhf; mrrpd; rkdghL $x=0$ myyJ y mrR MFk; rhhgpd; , opTg; ngWkhdk; 0 MFk; j pUkgw; Gss;pad; Ms;\$W (0, 0) MFk;

nrawghL - 2

$y = x^2$ rhhgpd; ti uG %yk; thff %yj j f; fhz Nghk;

- (1) $y = 16$ vDk; NehNfhl j l ti uAqfs; mJ guti sapi a ntlLk; GsspfspYss x , d; ngWkhdqfi s vOJqfs;

- (2) $y = 9$ vDk; NehNfhl j l ti uAqfs; guti sapi a ntlLk; Gsspfsp; x , d; ngWkhdqfi s vOJqfs;



$\sqrt{16}$, d; ngWkhdqfi s vOJqfs; mJ x , d; ngWkhdqfS fF rkdhdj h?

$\sqrt{9}$, d; ngWkhdqfi s vOJqfs; fpi l fFk; tpi l x , d; ngWkhdqfS fF rkdhdj h?

x mrRfF rkhej ukhf Vj htJ xU GsspapD}L ti uaggLk; NehNfLfs> guti sapi a ntlLk; Gsspfsp; x ngWkhdqfs; mej Gssp FwffFk; vz z pd; thff%yk; MFk;

- (3) $y = 3$ vDk; NehNfhl j l ti uAqfs; ti uGfsy; rej pfFk; Gsspfsp; x ngWkhdqfi sf; fhZ qfs; $+1.7$, -1.7 MFk; $(\sqrt{3} = 1.73)$ fpi ba Kj yhk; j rkj hdj j pWF& , j dgb , tti ugpd; %yk; $\sqrt{6}$, $\sqrt{5}$, $\sqrt{10}$ Mfpatwmpd; ngWkhdqfi sf; fhZ qfs;



- (1) nttNtW Ms\$wWj; j sqfsy; $-3 < x < 3$ vDk; trRfsy; fNo j uggLss rhhGfspd; ti uGfi s ti uf.

(i) $y = x^2$ (ii) $y = 2x^2$ (iii) $y = 4x^2$ (iv) $y = \frac{1}{2}x^2$ (v) $y = \frac{1}{4}x^2$

- (2) NkNy j uggLss xtnthU ti ugpdJk;
 (i) rkrrh; mrrpd; rkdghl j l vOJf.
 (ii) , opTg; ngWkhdj j j vOJf.
 (iii) j pUkgw; Gsspapd; Ms\$Wfi s vOJf.

(3) NKNy c ss ti uGfs; %yKk; tpdh (2) , wF eqfs; vOj pa tpi l fs; %yKk; eqfs; fz l rkj di kfs; vdd?

(4) j pRf;fl j hrpi a vLj;J $y = 2x^2$, $y = 4x^2$, $y = \frac{1}{2}x^2$, $y = \frac{1}{4}x^2$, d;
 ti uGfi sg; gpj p nraAqfs; $y = x^2$ vDk; rhh; gf; Fw;Fk; ti uG kLj
 j pUkgw; Gss;Fk; rkrh; mrRk; nghUe;J khW i tj;J $y = 2x^2$, $y = 4x^2$,
 $y = \frac{1}{2}x^2$, $y = \frac{1}{4}x^2$ vDk; ti uGfs;pd; gukgy;fi s mtj hdpAqfs;

(5) x^2 , d; Fz fk; xdi wtpi Ki wahf mj pRf;FkNghJ 1 tpi f; Fi wthfTk;
 0 l tpi g; nghj hfTk; , Uf;FkNghJk; ti uGfs; tpe;J nryYk; Ki wapi d
 mtj hdp;J mtwi w vOJ qfs; ^guti say; x^2 , d; Fz fk; khWkNghJ
 ti ugpy; VwgLk; khwwk; nj hl hghf.&

(6) $y = 3x^2$ " $y = \frac{1}{3}x^2$ vDk; ti uGfi s xNu Ms;\$wWj j sj j py; ti uAqfs;
 $y = x^2$, $y = \frac{1}{2}x^2$ vDk; ti uGfi s xNu Ms;\$wWj j sj j py; ti uAqfs;
 eqfs; (5) , y; rkrh; ngww Kbtpi d c Wj pggLj j pf; nfhsS qfs;

nrawghL - 3

$y = -x^2$ vDk; ti ui g ti utj w;F $-4 \leq x \leq 4$ vDk; th;Rf;Fs;
 mi kf;fggl ml; ti z apd; ntwwp; qfi s epugGqfs;

x	-4	-3	-2	-1	0	1	2	3	4
y = -x ²	-16		-1	0	-			-16

ti ugpy; x , d; ngWkhdqfs; -4 , y;Ue;J +4 ti u mj pRf;FkNghJ y
 , d; ngWkhdj i j g; ghll nj ;Jg; ghUqfs;

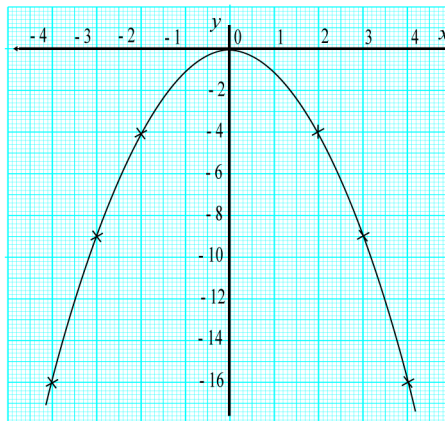
y , d; ngWkhdqfs; -16 , y;Ue;J Ki wahf 0 ti u mj pRf;FkNghJ kL; Lk;
 -16 ti u Fi wAk; tj j j j ml; ti z %yk; mtj hdpAqfs;

Ms;\$wWj j snkhdwpy; y - mri r ti ue;J x mri r NKNy ti ue;J
 Ms;\$wfi sf; Fw;Aqfs;

Kddh; NghdW Rahj bkfhf i fahy; ti ui g ti uAqfs; x , d; ngWkhdk;
 Ki wahf mj pRf;FkNghJ y , d; ngWkhdk; Ki wahf -16 , y;Ue;J 0 ti u
 mj pRf;FkNghJ kL; Lk; -16 ti u Fi wAk;

vdNt , t;ti ugpy; , opTgngWkhdkdwp c ah;Tg; ngWkhdNk c ssJ.

, t;ti uG $x=0$ Mffnfhz L y mrrpy; rkr;rhf mi kfpdWJ. j pUkgw; Gs;spad; Ms;\$Wfs; $(0, 0)$ MFk;



$y = x^2$ vdw ti ui g j pRf; fl j hrpapy; gup p nraJ fb; Nehf;fj; j pUggp $y = -x^2$ kL i tAqfs;

ti uGfs; xd;Wl d; xd;W nghUe;J f;pdwj h?

j s Mbi a $y = x^2$ vDk; ti ugpy; x mrrpd; kL i tj;J j s Mbi a mtj hdpAqfs; gup p t;kgk; $y = -x^2$ MFkh? $y = x^2$, d; gup p t;kgk; $y = -x^2$ MFk;

nrawghL - 4

- $y = -2x^2$, $y = -4x^2$, $y = -\frac{1}{2}x^2$ vDk; ti uGfi s ti uAqfs;
- mtwwpd; gup p t;kgk; $y = 2x^2$, $y = 4x^2$, $y = \frac{1}{2}x^2$ MFkh vdgi j xggpLqfs;
- c qfs; Kbi t trdj j py; vOJ qfs;
- $y = 2x^2$ vDk; rhhgpy; x^2 , d; Fz fk; Neug; ngWkhdj i j f; nfhz bUggj hy; rhuG c au;Tg; ngWkhdj i j f; nfhz bUf;Fkh? myyJ , opTg; ngWkhdj i j f; nfhz bUf;Fkh?

$y = ax^2$ vDk; , Ugbr;rhG xdwpd; , Ugba;pd; Fz fk; 1 l t;pl f; \$LkNghJ ti uG y mri r Nehf;fp , U gf;fKk; xLq;fp nry;fpwJ. Fz fk; xdi wtp; f; Fi we;J > Grrpaj; j t;pl f; \$ba ngWkhdkhdj; j vLf;FkNghJ ti uG y mrrpy;Ue;J t;py;fp , U gf;fKk; t;hp;J nry;fpdWJ.



- (1) $y = -x^2$, $y = x^2$ Mfpa ti uGfi s $-4 \leq x \leq +4$ vDk; Mapi l f;spy; ti uf
- (2) ti ui g ti uahJ
 - (i). $y = 2x^2$ vDk; rhhgpd; , opTg; ngWkhdj i j vOJ f

(ii) $y = 2x^2$ vDk; rhhgpd; rkrh; mrrpd; rkdghl i l vOJ f.

(iii) $y = 2x^2$ vDk; rhhgpd; j pUkgw; Gssjapd; Ms;\$Wfi s vOJ f.

(3) ti uGfi s ti uahJ >

$y = 2x^2$ " $y = \frac{-1}{2}x^2$ ti uGfspd; c ah;Tg; ngWkhdj i j Ak;

, opTg; ngWkhdj i j Ak; vOJ f.

$y = 2x^2$ vDk; rhhgpd; tjkghd ti ugpd; rkdghl i l vOJ f.

mj d; j pUkgw; Gssjapd; Ms;\$Wfi s vOJ f.

$y = \frac{-1}{2}x^2$ vDk; rhhgpd; guj p tjkghf mi kAk; ti ugpd; rkdghl i l

vOJ f. mj d; rkrh; mrrpd; rkdghl i l vOJ f.

(4) ti ui g ti uahJ

$y = 3x^2$ vDk; rhhgy; ti ugpd;

(i) c ah;T \$, opTg; ngWkhdq;fi s vOJ f

(ii) , j i d ti ugpd; rkdghl bYss vggz Gfi sf; nfhz L j hkhdpgh?

(iii) ti ugpd; rkrh; Nfhl bd; rkdghl i l vOJ f..

(iv) rhhgpd; j pUkgw; Gssjapd; Ms;\$Wfi s vOJ f

$y = ax^2 + b$ vdw ti uG

$y = x^2 + 2$ vDk; rhhgpd; ti uG ti utj wF $-4 \leq x \leq 4$ l vLff.

ntwpl q;fi s epugGf.

x	-4	-3	-2	-1	0	1	2	3	4
x^2	16			1	0			9	
$y = x^2 + 2$	18			3	2			11	

ti uG %yk;

(i) rkrh; mrrpd; rkdghLfi s vOJ f.

(ii) , opTg; ngWkhd; ahJ?

(iii) j pUkgw; Gssjapd; Ms;\$Wfi s vOJ f

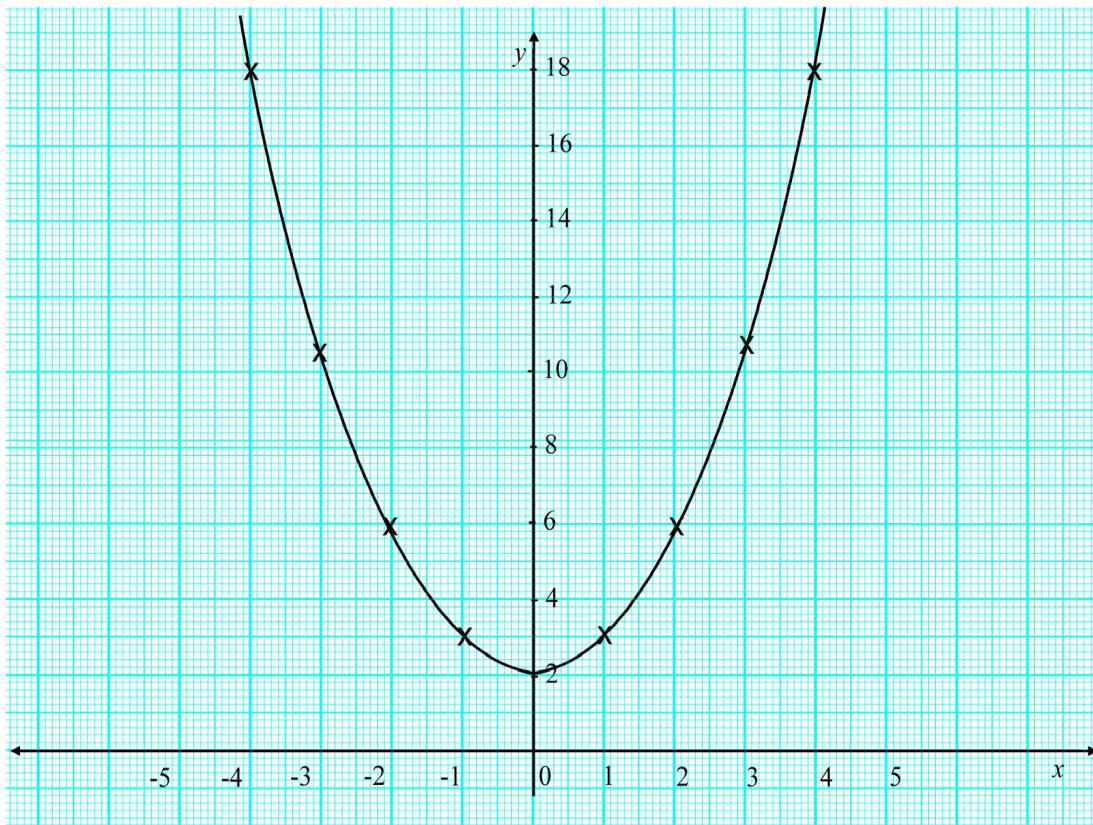
$y = x^2$, d; rkrh; Nfhl bd; rkdghLk;

$y = x^2 + 2$, d; rkrh; Nfhl bd; rkdghLk; rkdhdj h?

$y = x^2 + 2$, d; , opTg; ngWkhdj i j ml i ti z %yk; fhz KbAkh?

$y = x^2 + 2$, opTg; ngWkhdj i j ti ugpd; %yk; fhz KbAkh?

j pUkgw; Gs;spapd; Ms;\$Wfi s vOJkNghJ rkrh; mrrpd;
rkdghl i l Ak; , opTg; ngWkhdj i j Ak; gadgLj j KbAkh? NKNy c ss ti ugpd;
, opTg; ngWkhdk; 2 vdgi j mwpt h;fs;
mt;thNw rkrh; Nfhl bd; rkdghL $x = 0$ MFk;



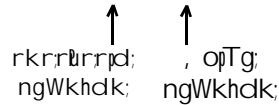
j pUkgw; GSSpæd; Ms;\$W (0, 2) MFk;

mj dgb $y = x^2 + 2$ vDk; ti ugpy; , oþTg; ngWkhdk; fpi l f;fdwJ.

(, Ugb c Wggpd; Fz fk; Neh; vdgj hy)

, oþTg; ngWkhdk; 2 MFk; $x^2 + 2 \rightarrow$, j d; %yk; , oþTg; ngWkhdk;

fhl i ggLk; j pUkgw; GSSpæd; Ms;\$W (0, 2)



$y = x^2 - 5$ vDk; rhhgpd; ti ui g ti uahJ fNo c ss KbTfi s
vOJNthk;

khwhg; ngWkhdk; -5 vdgj hy; , oþTg; ngWkhdk; -5 MFk;

rkrriþ; rkdghL $x = 0$ MFk;

j pUkgw; GSSp (0, -5) MFk;

C j huz k:1

$y = -x^2 + 3$ vDk; ti ugpd;

c ah;Tg; ngWkhdk; +3 MFk;

rkrriþ; mrrpd; rkdghL $x = 0$ vdgj hy; j pUkgw; GSSpæd; Ms;\$W (0,3)

MFk;

I. $y = ax^2$ vDk; ti ugpy;

* y mrR myyJ $x = 0$ rkrriþ; mrrhFk;

* j pUkgw; GSSp (0, 0) C l hf ti uG nry;Yk;

* ti ugpd; tbt; guti sap MFk;

* $a < 0$ MFkNghJ c ah;Tg; ngWkhdk; MFk;

* $a > 0$ MFkNghJ , oþTg; ngWkhdk; MFk;

* $y = ax^2$ rhhgpd; x mrrpyhd tþkgk; $y = -ax^2$ rhhghFk;

II. $y = ax^2 + b$ vDk; ti ugpy;

* $y = ax^2 + b$ rhhgpd; (0, b) j pUkgw; GSSpæhFk;

* $a > 0$ Mapd; , oþTg; ngWkhdk; b MFk;

* $a < 0$ Mapd; c ah;Tg; ngWkhdk; b MFk;

III. $y = ax^2$ ti ugpy; y mrrpd; eþsj j py; b J}uk; ti uG khwwki l Ak;

NghJ $y = ax^2 + b$ vDk; ti uG fpi l f;Fk;

01. $-3 < x < +3$ tRrFfFs;

(m) (i) $y = x^2 - 5$ (ii). $y = -x^2 + 3$ (iii). $y = x^2 + 2$ (iv). $y = 2x^2 + 3$
vDk; ti uGfi s ti uf.

(M) (i) NkNy c ss ti uGfspd; c ah;Tg; ngWkhdqfs; / , opTg;
ngWkhdqfs; vdgdtwi w vOJ f.

(ii) NkNy c ss ti uGfspd; j pUkgw; Gss;pf i s vOJ f.

02. fNo j ugg lLss rhhGfs; nj hl ghf ml i ti z apYss ntwwpl qfi s epugGqfs;

rhhG	rkrRr; mrrpd; rkdghL	rhhG c ahtdjh / , optdjh	rhhgpd; c ah;Tg; ngWkhdk; / , opTg; ngWkhdk;	j pUkgw; Gss;pd; Ms;\$W
$y = 4x^2$ $y = \frac{1}{2} x^2$ $y = -\frac{3}{4} x^2$ $y = -5x^2$ $y = 3x^2 + 1$ $y = 2x^2 - 3$ $y = -3x^2 + 4$ $y = 3 - x^2$ $y = -2 - x^2$ $y = 5 - x^2$				

03. guti sap rhhgpd; , opTg; ngWkhdk; -3 " rkrRr; mrrpd; rkdghL $x = 0$ Mapd;
, t;ti ugpd; $y = x^2$ rhhghf ti ugpd; rkdghl i l vOJ qfs; j pUkgw; Gss;pd;
Ms;\$i w vOJ f.

04. $y = x^2$ vDk; rhhgpd; y mrR tofNa Nehj j pi rapy; 5 myF> fl eJ j pUkgw;
nry;Yk; rhhgpd; rkdghl i l vOJ f. j pUkgw; Gss;pd; Ms;\$i w vOJ f

05. $y = x^2 + 5$ vDk; rhhgpd; ti ui g ti utj wF $-3 \leq x \leq 3$ vDk; tRfFs; ml i ti z i aj; j ahpf.

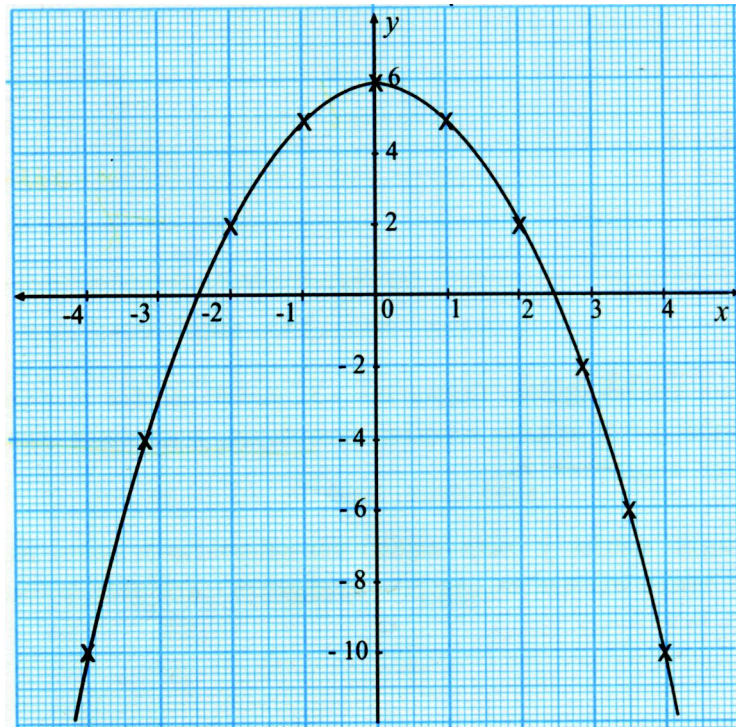
x mrR topNa 10 rmpa rJuqfi s 1 myfhfTk; y mrR topNa 10 rmpa rJuqfi s 2 myfhfTk; nfhz L ti ui g ti uf.

- (i) ti ugpd; , opTg; ngWkhdk;
- (ii) j pUkgw; Gsspdp; Ms;\$W
- (iii) rkrh; mrrpd; rkdghL vdgdtwi w vOJ f

06. (i) $y = -x^2 + 2$ vDk; rhhgpd; ti ui g ti utj wF; nghUj j khd ml i ti z i aj; j ahpAqfs; , rhhgpd; c ahTg; ngWkhdk; / , opTg; ngWkhdk; j pUkgw; Gsspdp; Ms;\$W; rkrh; mrrpd; rkdghL vdgdtwi w ti uG ti utj wF Kddh; vOJ f

- (ii) ti ugpd; Ms;\$Wfi s Ms;\$Wwj sj j py; Fwj J ti ui g ti uAqfs; ebqfs; Kddh; ngww tpi l fs; , j DI d; nghUe; J f pdwj h vdg; ghuff.

- 07. (i) fNo juggl Lss ti ugpd; j pUkgw; Gsspdp; Ms;\$i w vOJ qfs;
- (ii) rkrh; mrrpd; rkdghl i l vOJ f.
- (iii) c ahTg; ngWkhdj i j vOJ f.
- (iv) ti ugpd; rkdghl i l vOJ f.



08. $y = x^2 - 3$ vDk; rhhgpd; ti ui g ti utj wFg; nghUj j khd ngWkhdqfi sf; nfhz i ml i ti z i aj; j ahpAqfs; ti ui g ti utj wF Kddh; ti ugpd

(i) , opTg; ngWkhdk;

(ii) j pUkgw; Gsspdpd; Ms:\$W

(iii) rkrh; mrrpd; rkdghL vdgtwi w vOJ f

ti ui g ti ueJ ebqfs; vOj pa i, ii, iii Mfatwmpd; tpi l fi s xggpLf
ti uG x mri r ntlLk; Gsspfsy; ntlLkhWk; c ahTg; ngWkhdk; +4
MfTKss ti ugpd; rkdghl i l vOJ f.

09. $y = x^2 + 2$ vDk; ti uG y mrrpd; toNa Nehj; j pi ray; 5 myFFs; , l g;
ngahrpai lej hy; mt;ti ugpd; rkdghl i l vOJ f.

mj d; , opTg; ngWkhdj i j Ak; rkrh; mrrpd; rkdghl i l Ak; vOJ f.

Mukgj j py; j uggll rkdghl bd; ti uG y mrrpd; toNa ki wj; j pi ray;
4 myFFs; , l g; ngahrpai lej hy; ngwggLk; ti ugpd; rkdghl i l vOJ f;

rhuhkrk;

★ , U fz paqfS ffpi l apYss nj hl hGfi s nj spthfTk; gpi oapdwAk;
fhl Ltj wF ti uGfi sg; gadgLj j KbAk;

★ kpfTk; vsja guti sap $y = x^2$ MFk; , j d; x mrrpyhd guj p tpkgk;
 $y = -x^2$ MFk;

★ guti sap xdwpd; gaz gghi j khWfpdw Gsspf;F j pUkgw; Gssp
vdf; \$WNthk;

★ guti sapwF rkrh; mrR c z L.

★ guti sapdpd; rkdghl bd; x^2 , d; Fz fk; Neuhf , Uf;Fk; NghJ rhhG
, opTg; ngWkhdj i j Ak> x^2 , d; Fz fk; ki wahf , Uf;FkNghJ
rhhG c ahTg; ngWkhdj i j Ak; nfhz buf;Fk;