

8 КЛАСС. АЛГЕБРА.

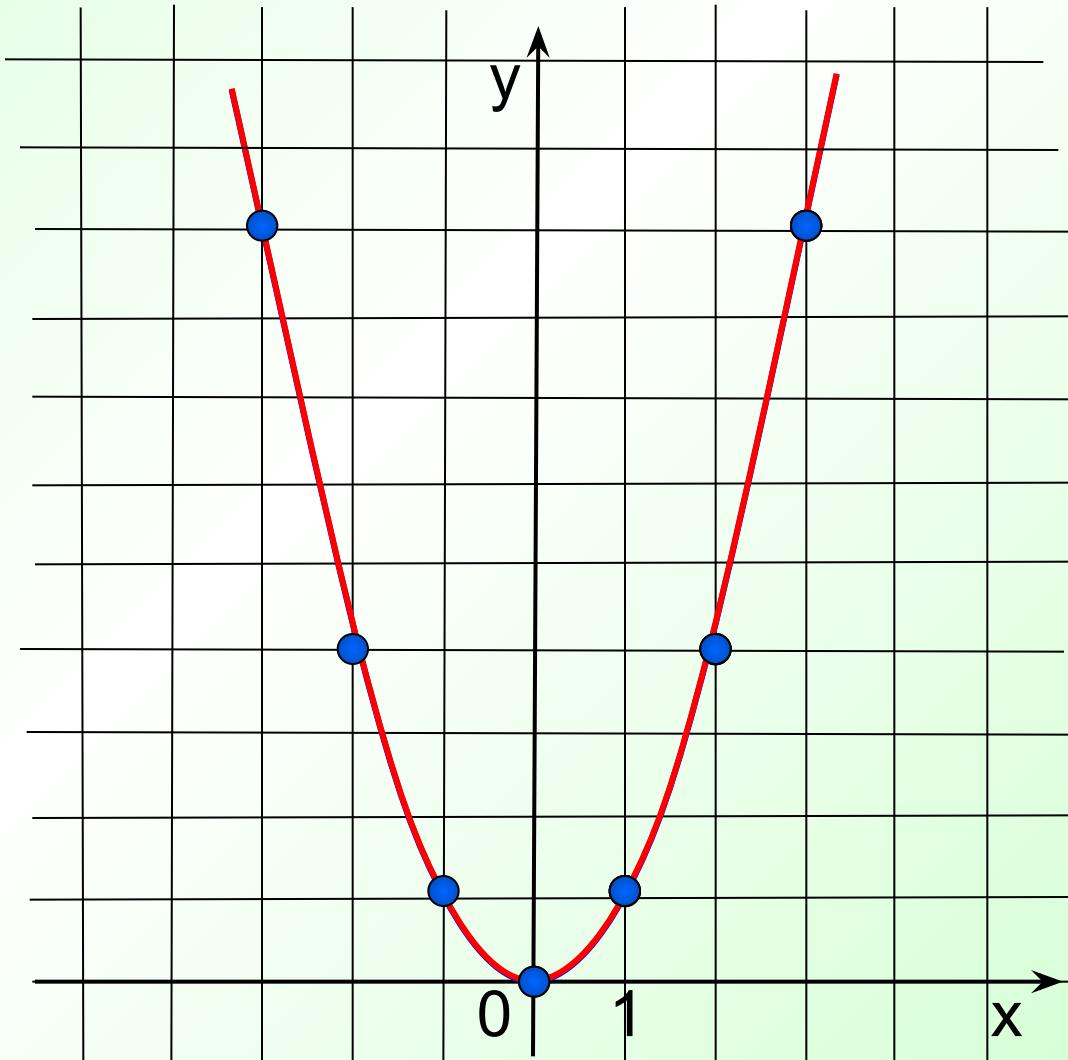
Ш.А. АЛИМОВ

Квадратичная функция

$$y = a(x - x_0)^2 + y_0$$

$$y = x^2$$

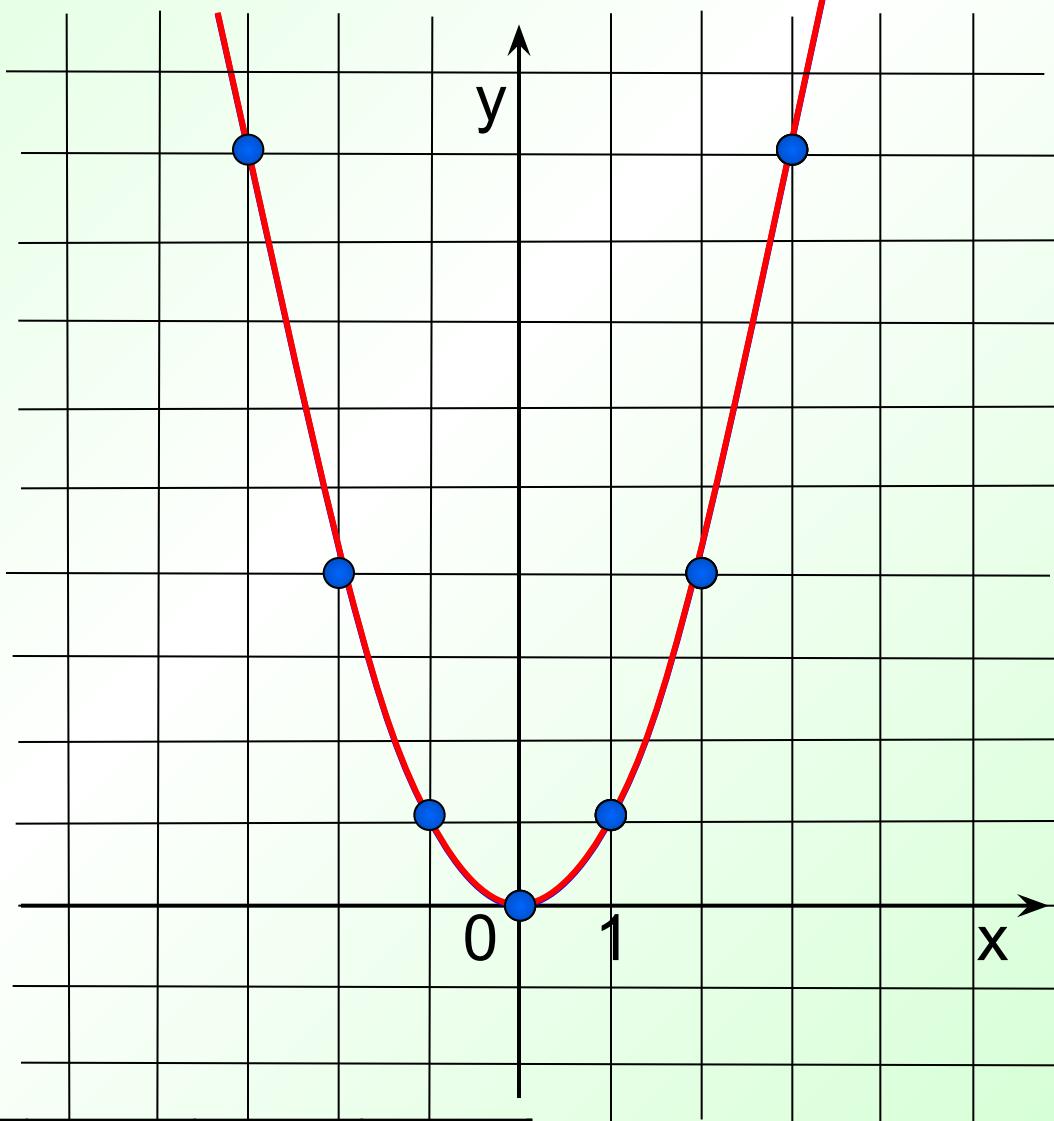
$$y = x^2 + 3$$



x	-3	-2	-1	0	1	2	3
y	12	7	4	3	4	7	12

$$y = x^2$$

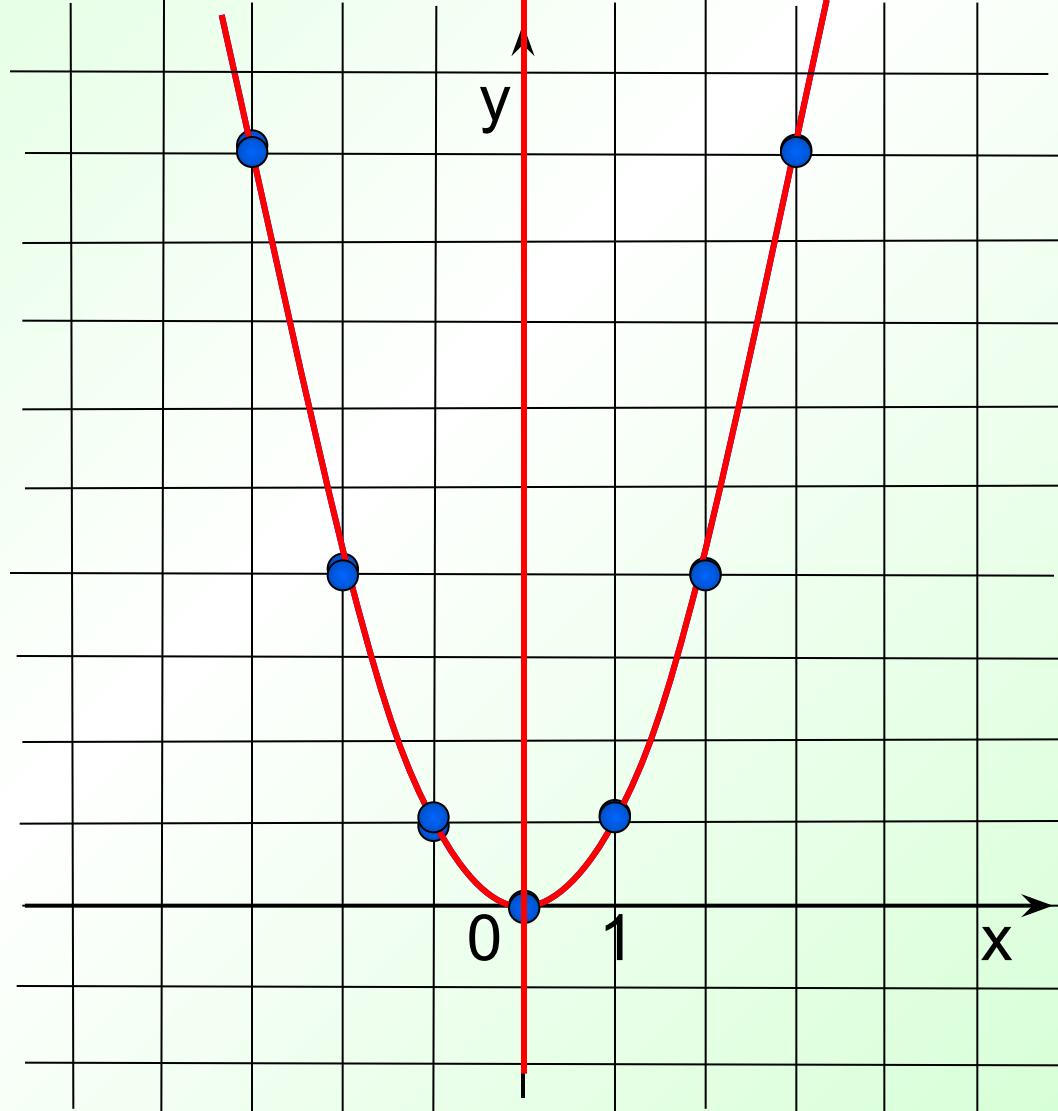
$$y = x^2 - 2$$



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

$$y = x^2$$

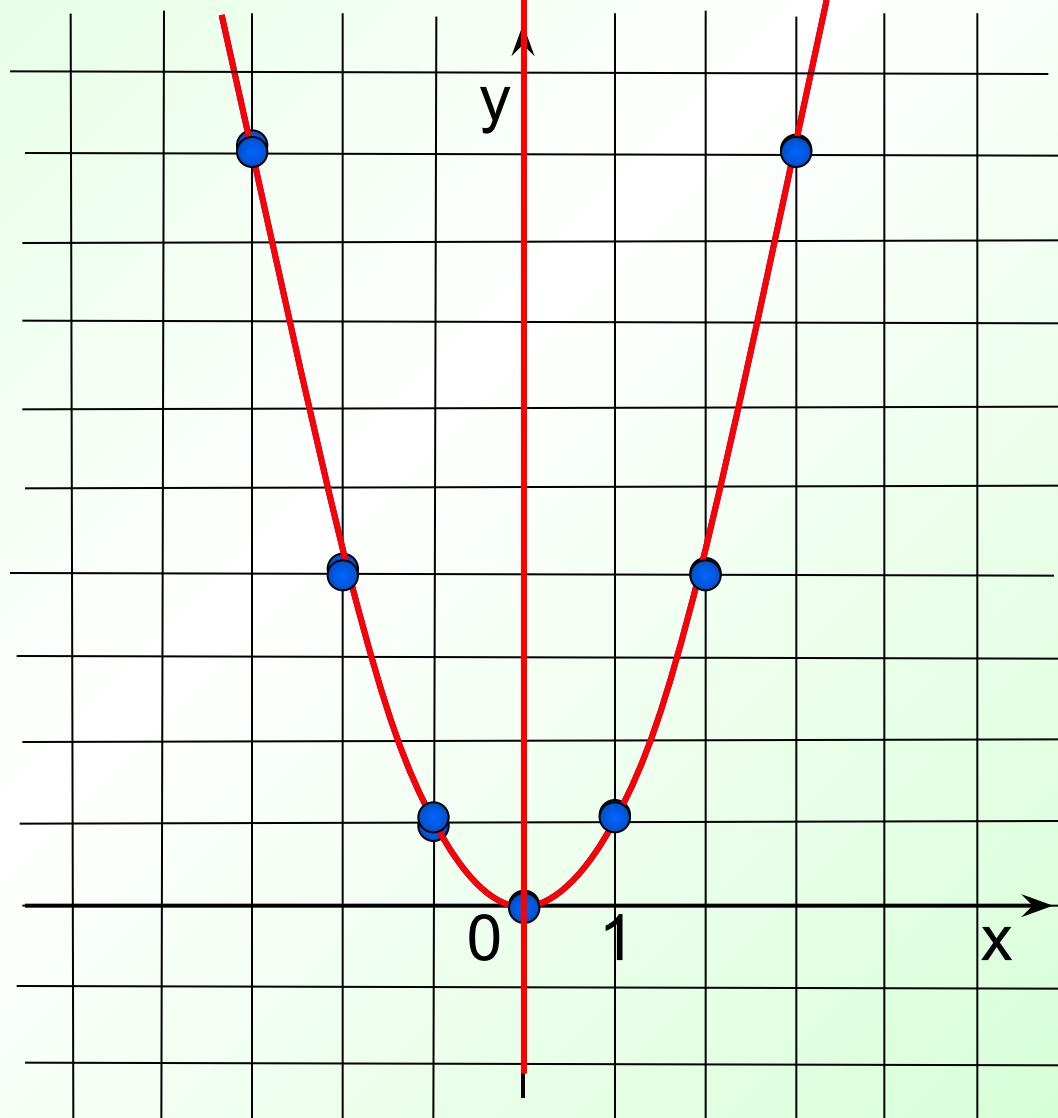
$$y = (x - 2)^2$$



x	-3	-2	-1	0	1	2	3	4	5
y	25	16	9	4	1	4	9	4	9

$$y = x^2$$

$$y = (x + 2)^2$$

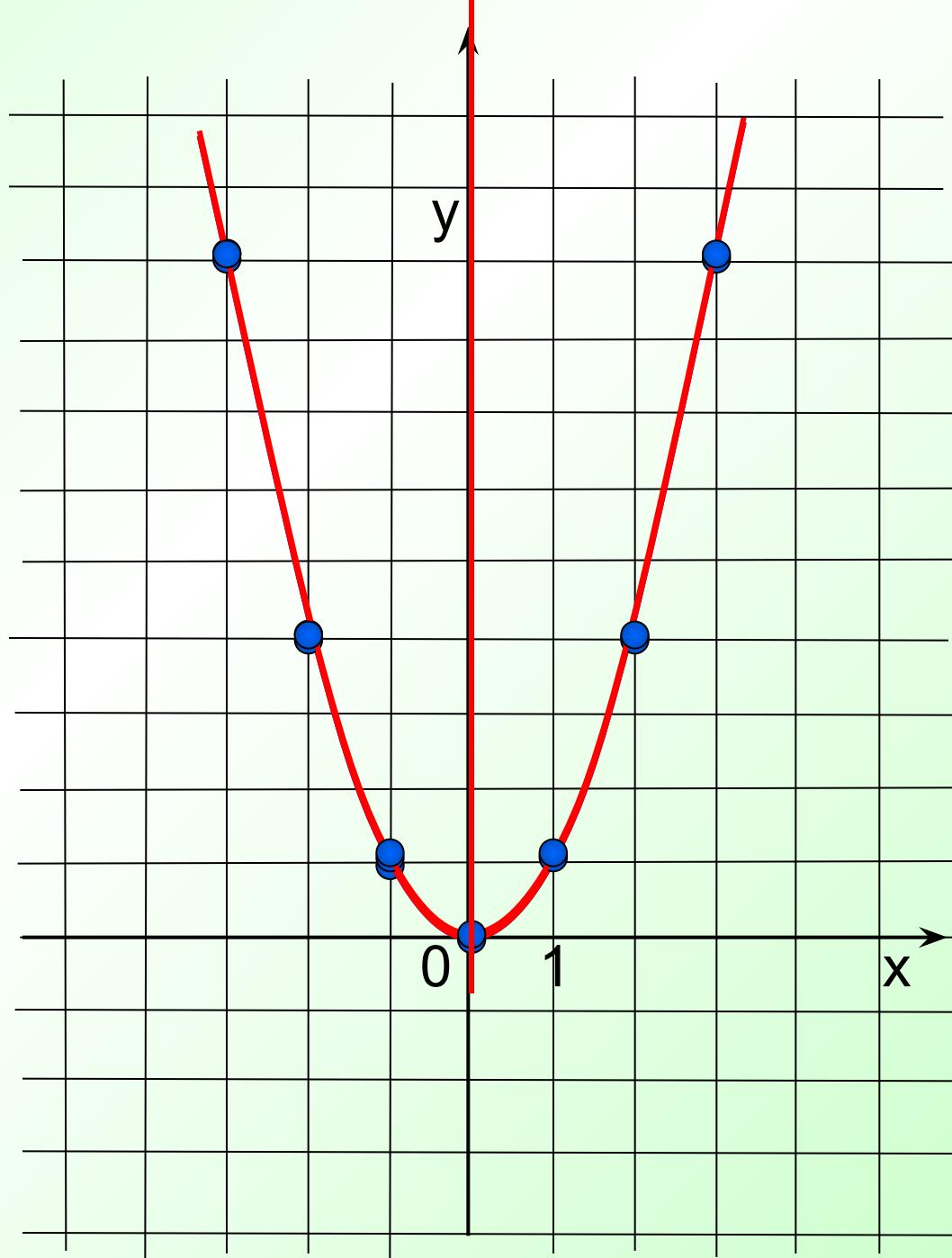


- 5	-x ⁴	- 3	- 2	-1	0	1	2	3
9	y	9	4	1	4	9	16	25

$$y = x^2$$

$$y = (x + 1)^2$$

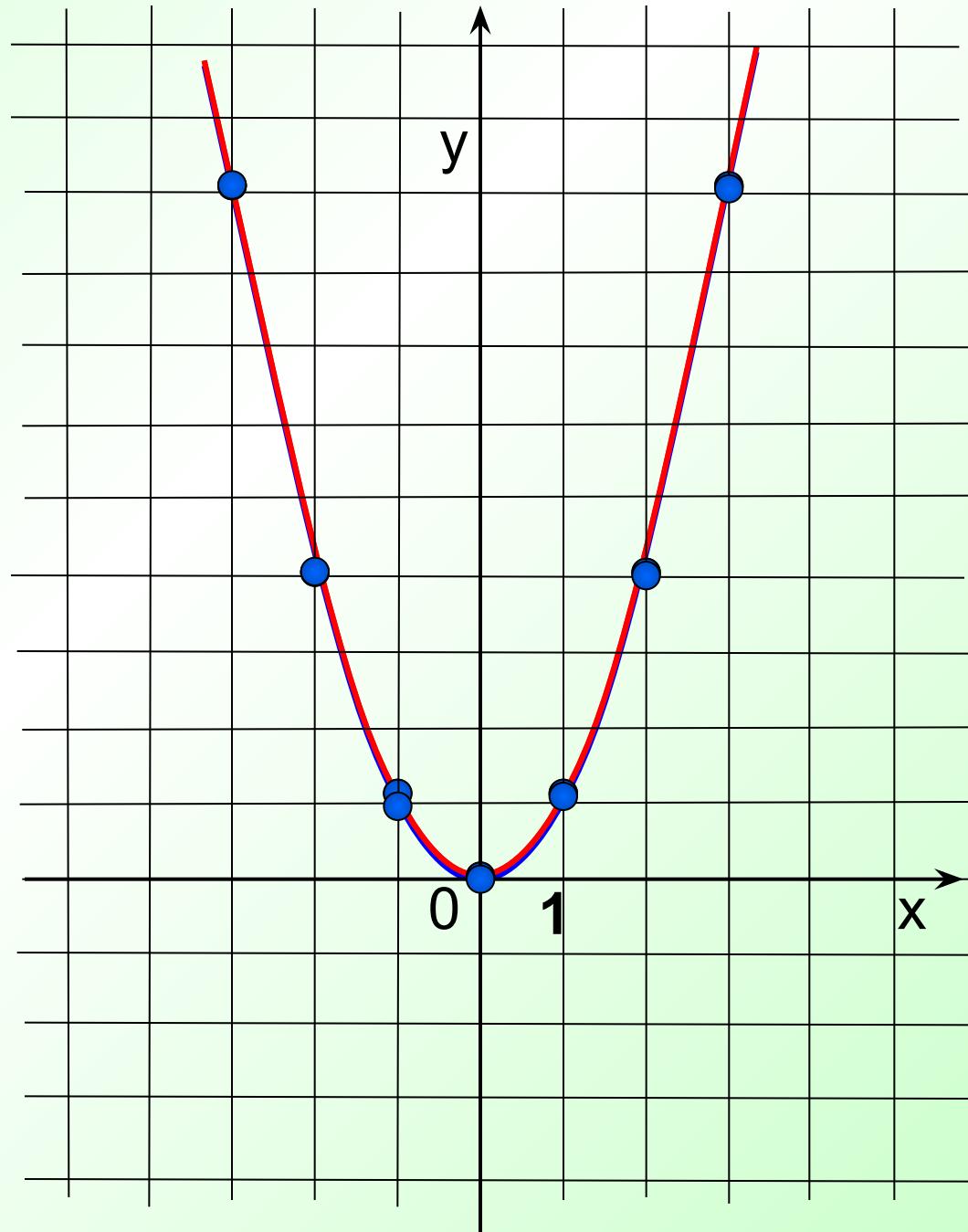
$$y = (x - 3)^2$$



$y = x^2$

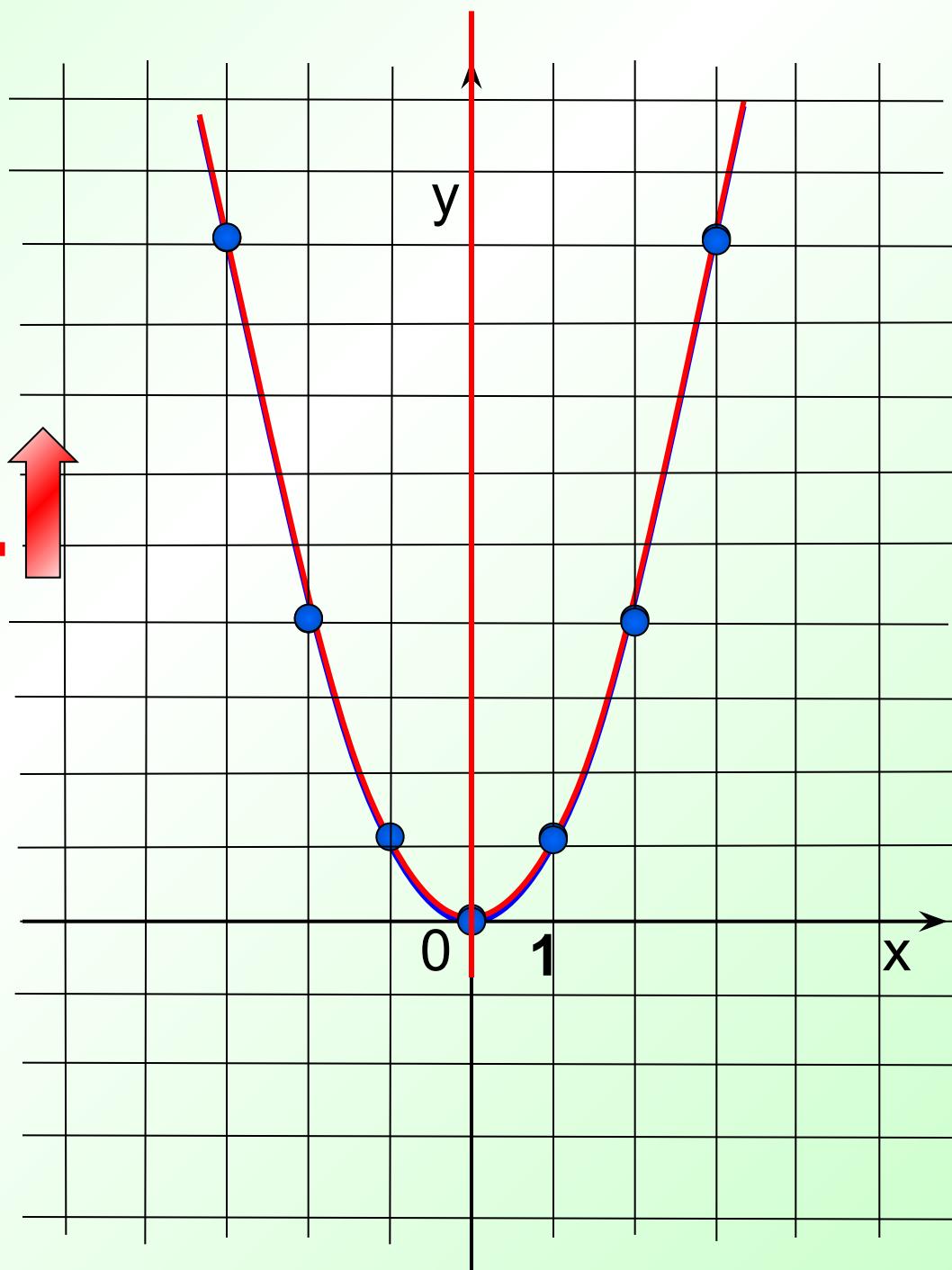
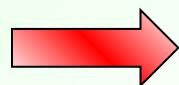
$y = x^2 + 4$ ↑

$y = x^2 - 3$ ↓



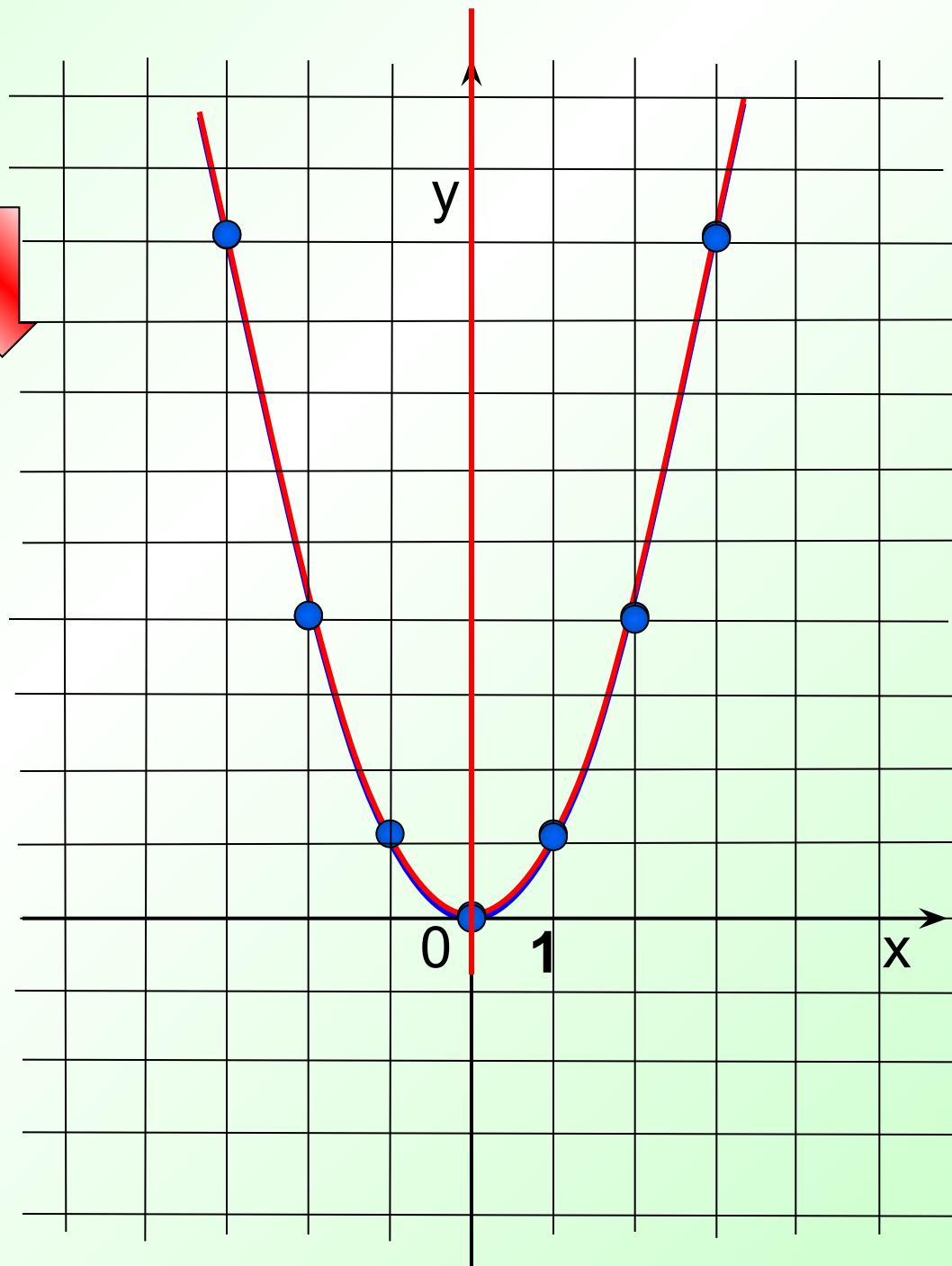
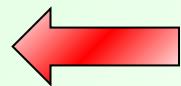
$$y = x^2$$

$$y = (x-2)^2 + 4$$



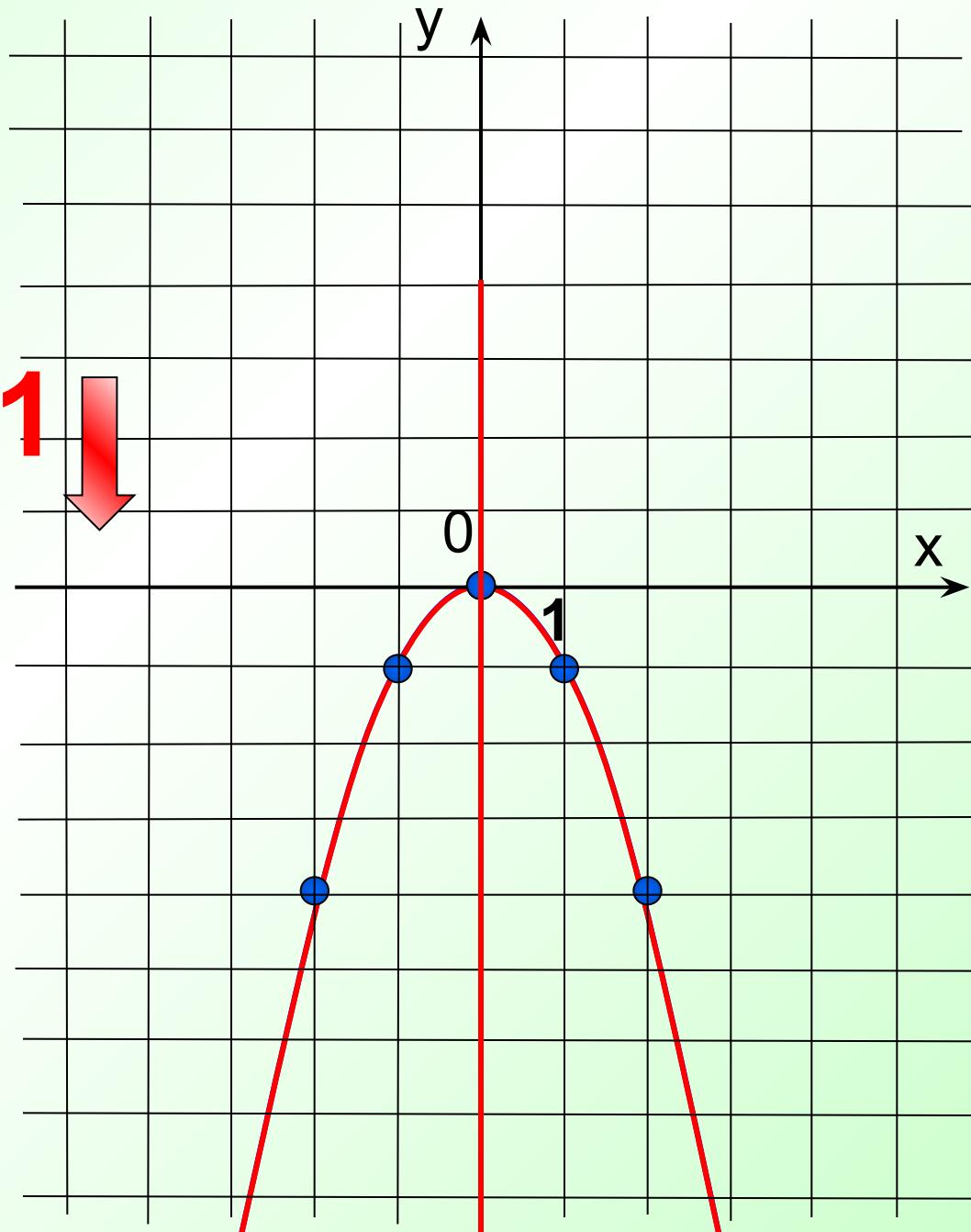
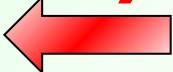
$$y = x^2$$

$$y = (x+3)^2 - 4$$



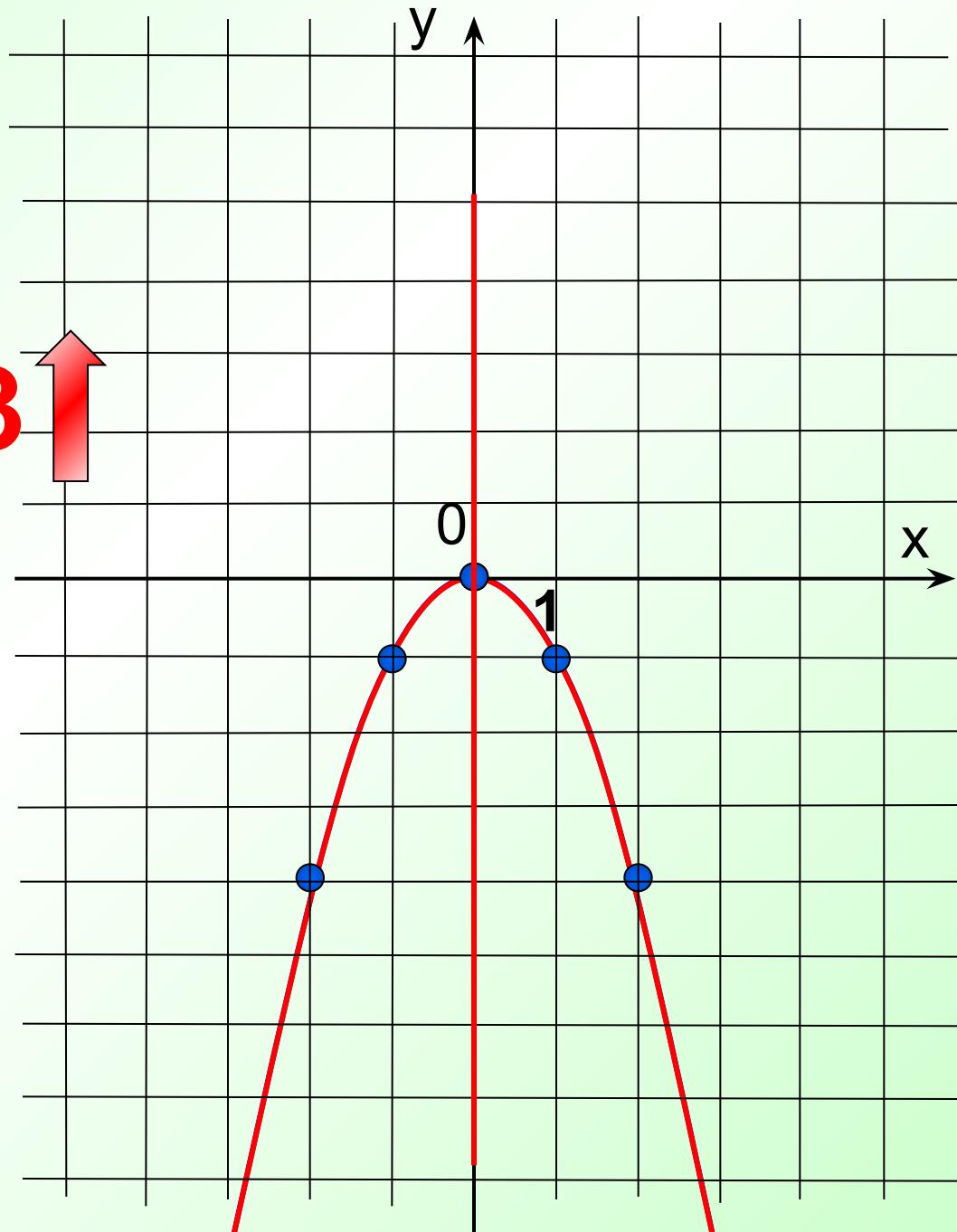
$$y = -x^2$$

$$y = - (x+3)^2 - 1$$



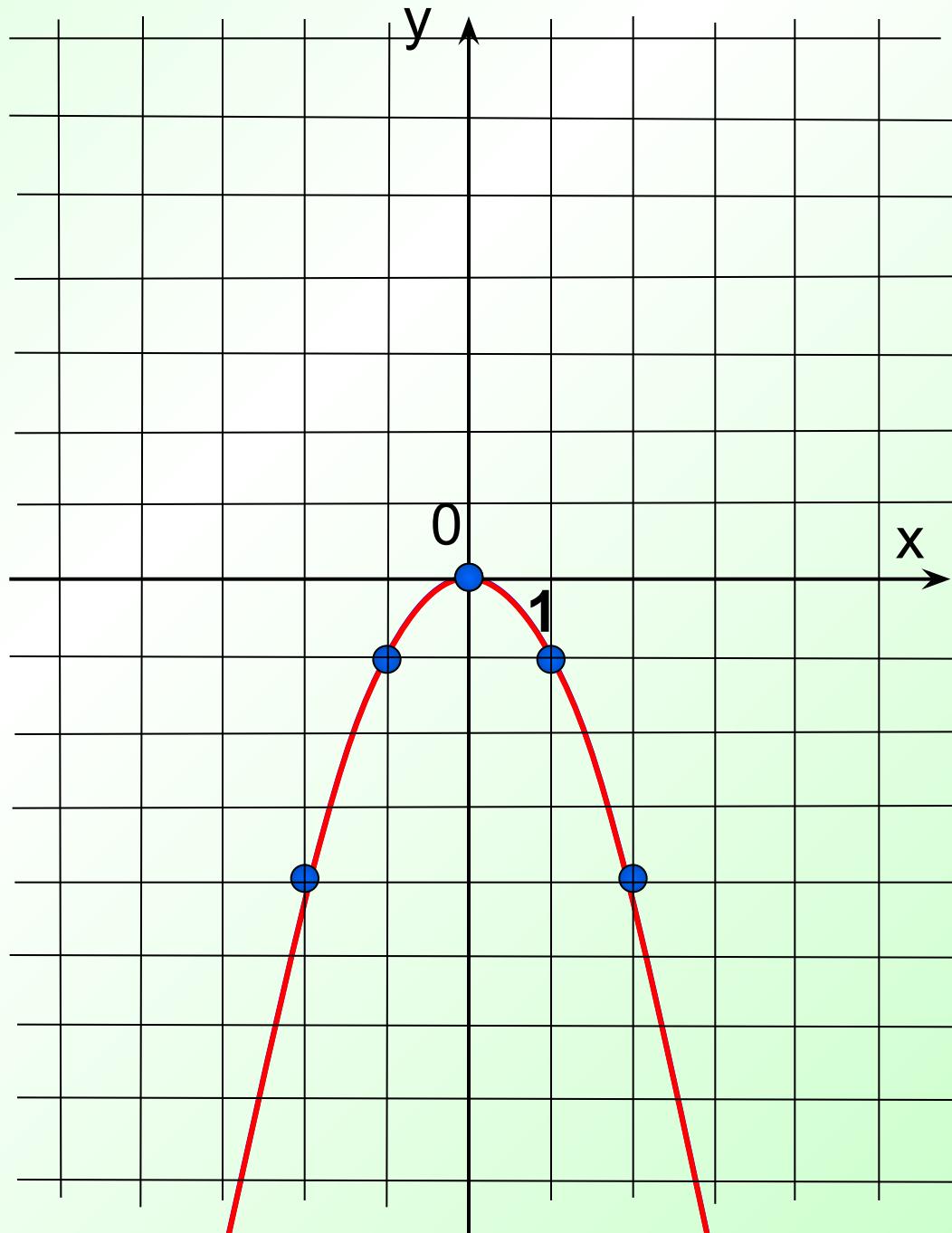
$$y = -x^2$$

$$y = - (x-3)^2 + 3$$



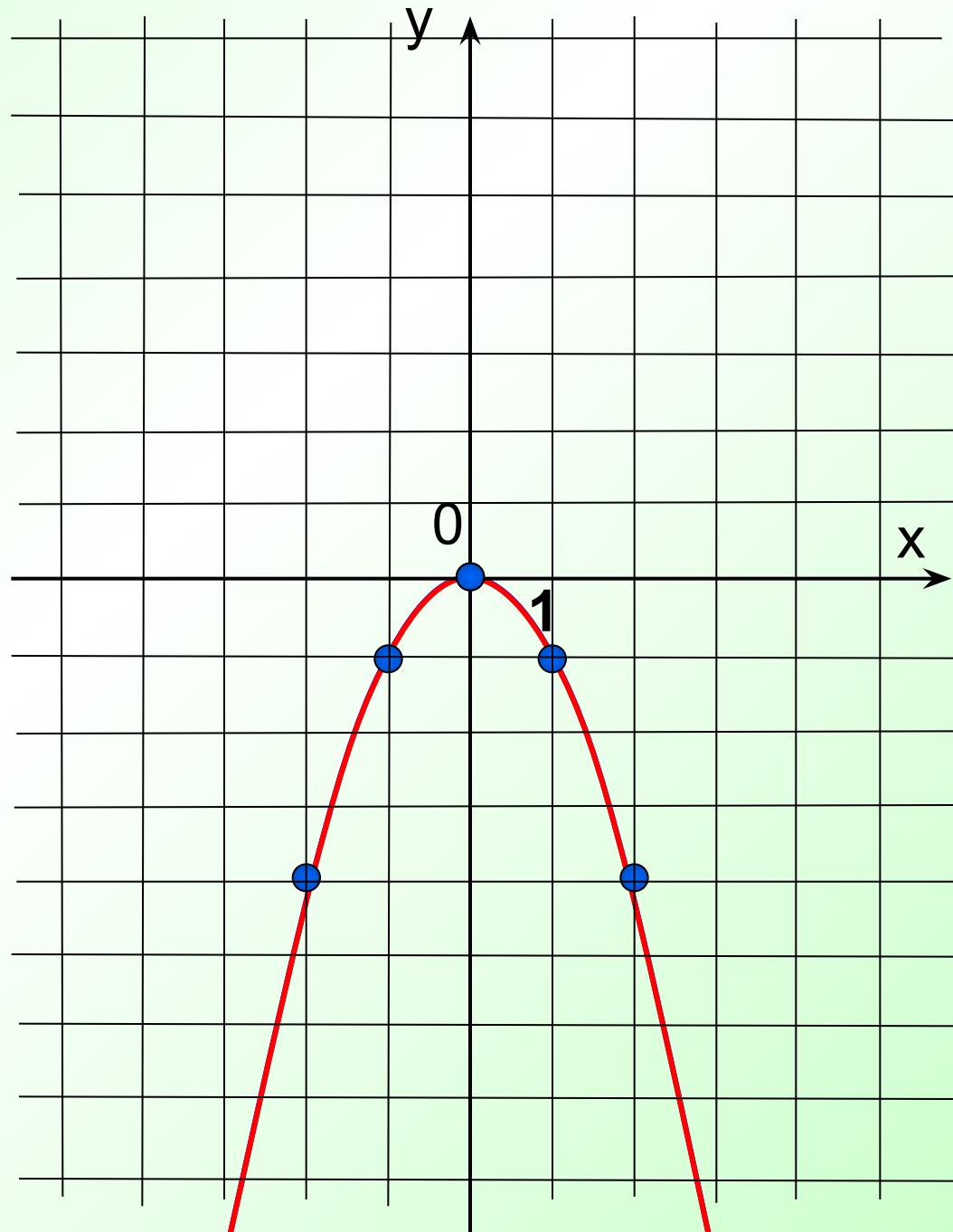
$$y = -x^2$$

$$y = -x^2 + 6$$



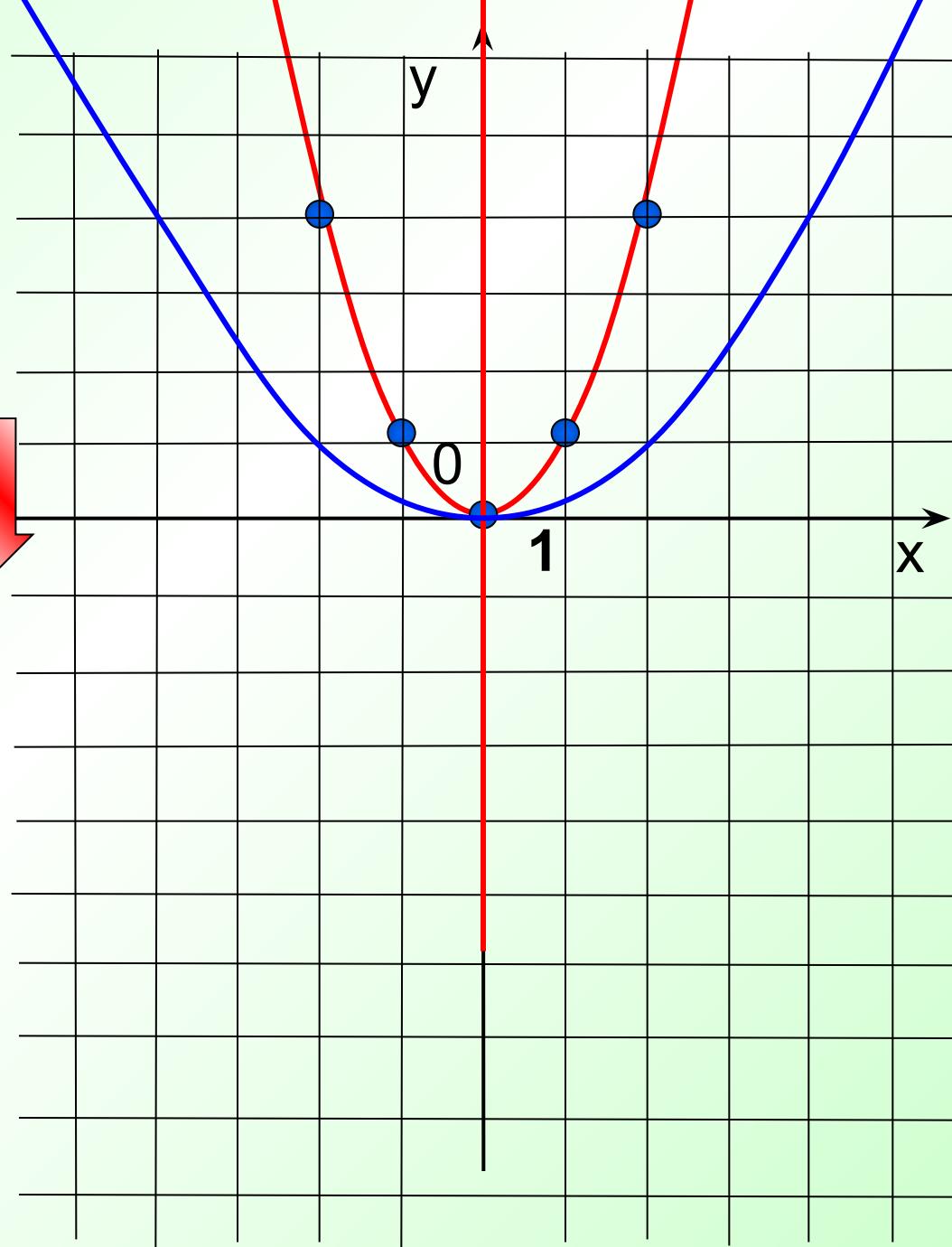
$$y = 3x^2$$

$$y = -3x^2 + 6 \uparrow$$



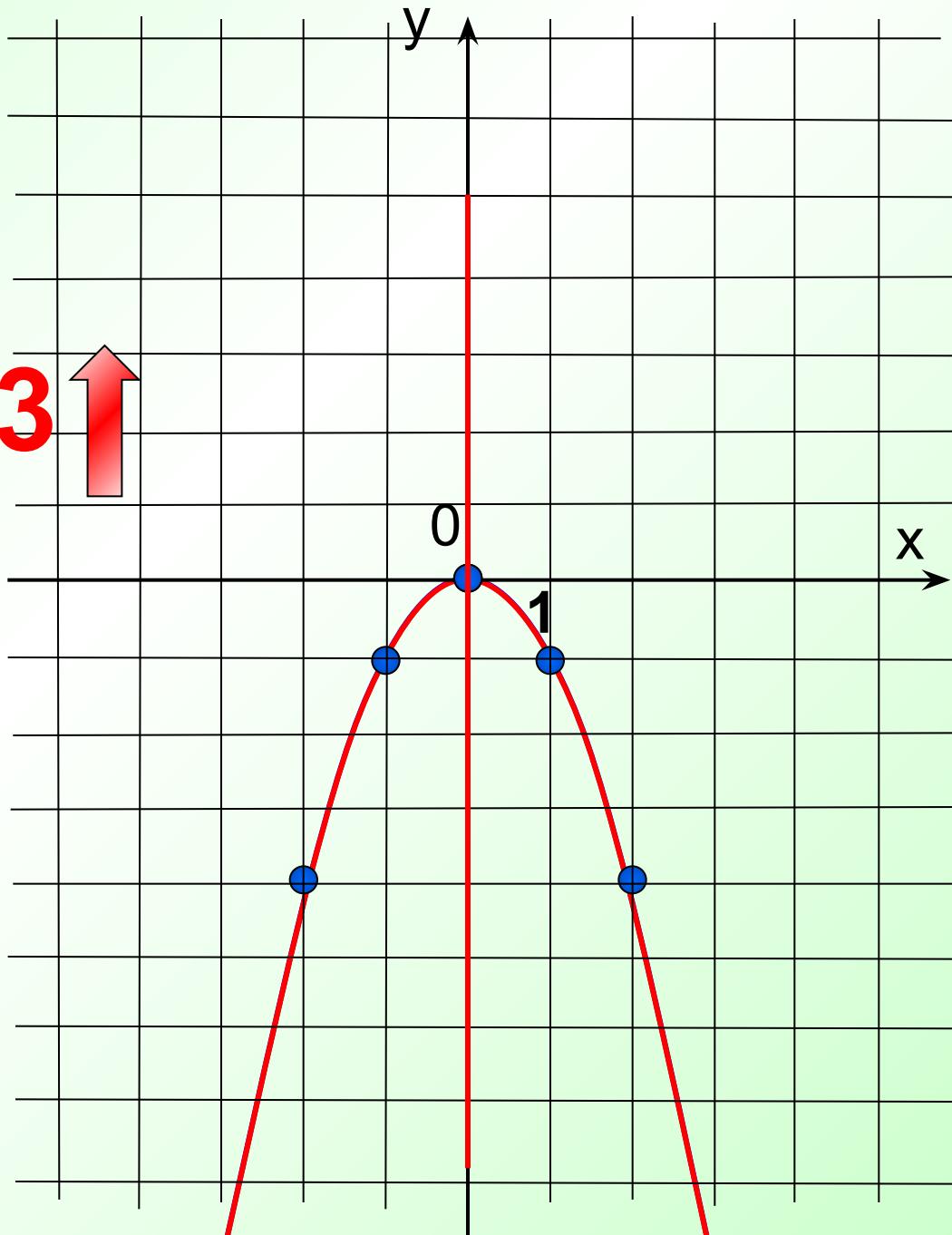
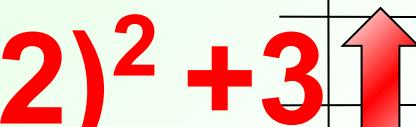
$$y = \frac{1}{4}x^2$$

$$y = \frac{1}{4}(x-1)^2 - 4$$



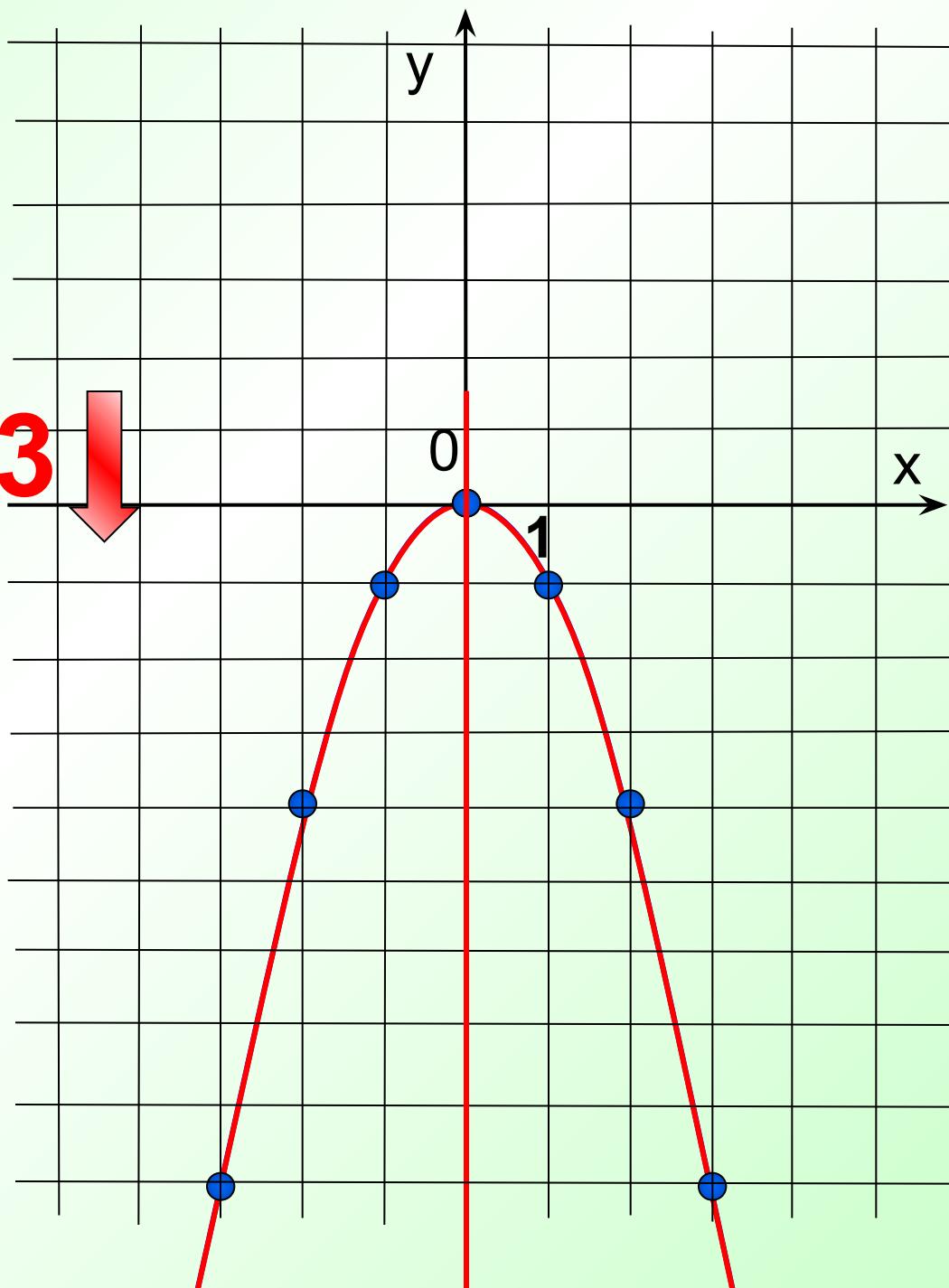
$$y = -2x^2$$

$$y = -2(x-2)^2 + 3$$



$$y = \frac{1}{2}x^2$$

$$y = -\frac{1}{2}(x+1)^2 - 3$$



$$y = a(x - x_0)^2 + y_0$$

Вершина параболы $(x_0; y_0)$

Ось симметрии $x = x_0$

Шаблон $y = ax^2$

$a > 0$, то ветви направлены вверх

$a < 0$, то ветви направлены вниз

	Направл ветвей	Вершина	Ось сим.	Шаблон
$y = x^2 + 5$		(0; 5)	$x = 0$	$y = x^2$
$y = (x-2)^2 + 5$		(2; 5)	$x = 2$	$y = x^2$
$y = 2x^2 - 3$		(0; -3)	$x = 0$	$y = 2x^2$
$y = -(x+3)^2 - 2$		(-3; -2)	$x = -3$	$y = x^2$
$y = 2(x-1)^2 + 1$		(1; 1)	$x = 1$	$y = 2x^2$
$y = -3(x+2)^2 - 4$		(-2; -4)	$x = -2$	$y = 3x^2$
$y = -(x+3)^2$		(-3; 0)	$x = -3$	$y = x^2$
$y = 2(x-4)^2$		(4; 0)	$x = 4$	$y = 2x^2$

$$y = x^2 + 2$$

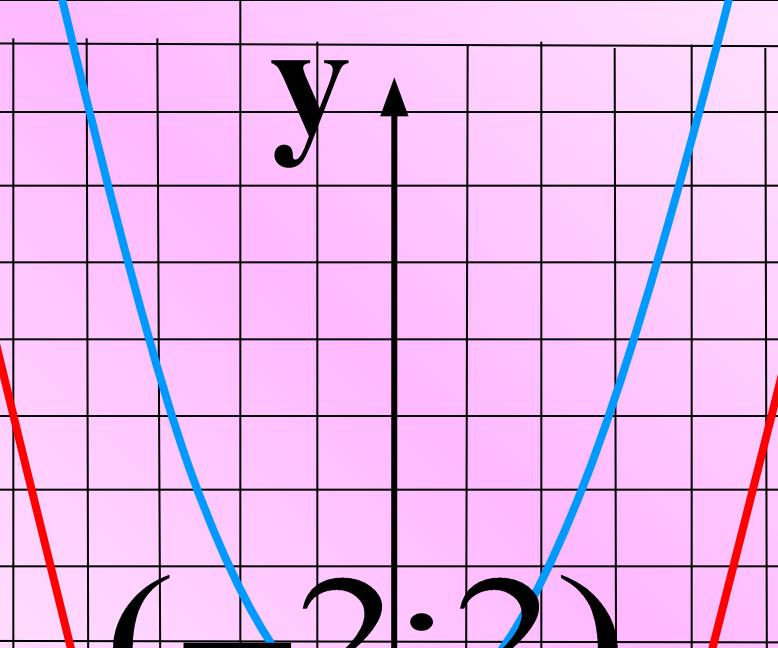
2

-1 0 1 2

x

$D(y) : x \in R$

$E(y) : y \in [2; +\infty)$

$y > 0$ y $y = 0$ $(-\infty; -2)$ $(-2; 2)$ $(2; +\infty)$ -2 -1 0 1 2 x $y < 0$ $y = x^2 - 4$ 



y

$$y = (x + 2)^2$$

$(-\infty; -2]$

$[-2; +\infty)$

-2

0

1

2

x

