

8 КЛАСС. АЛГЕБРА.

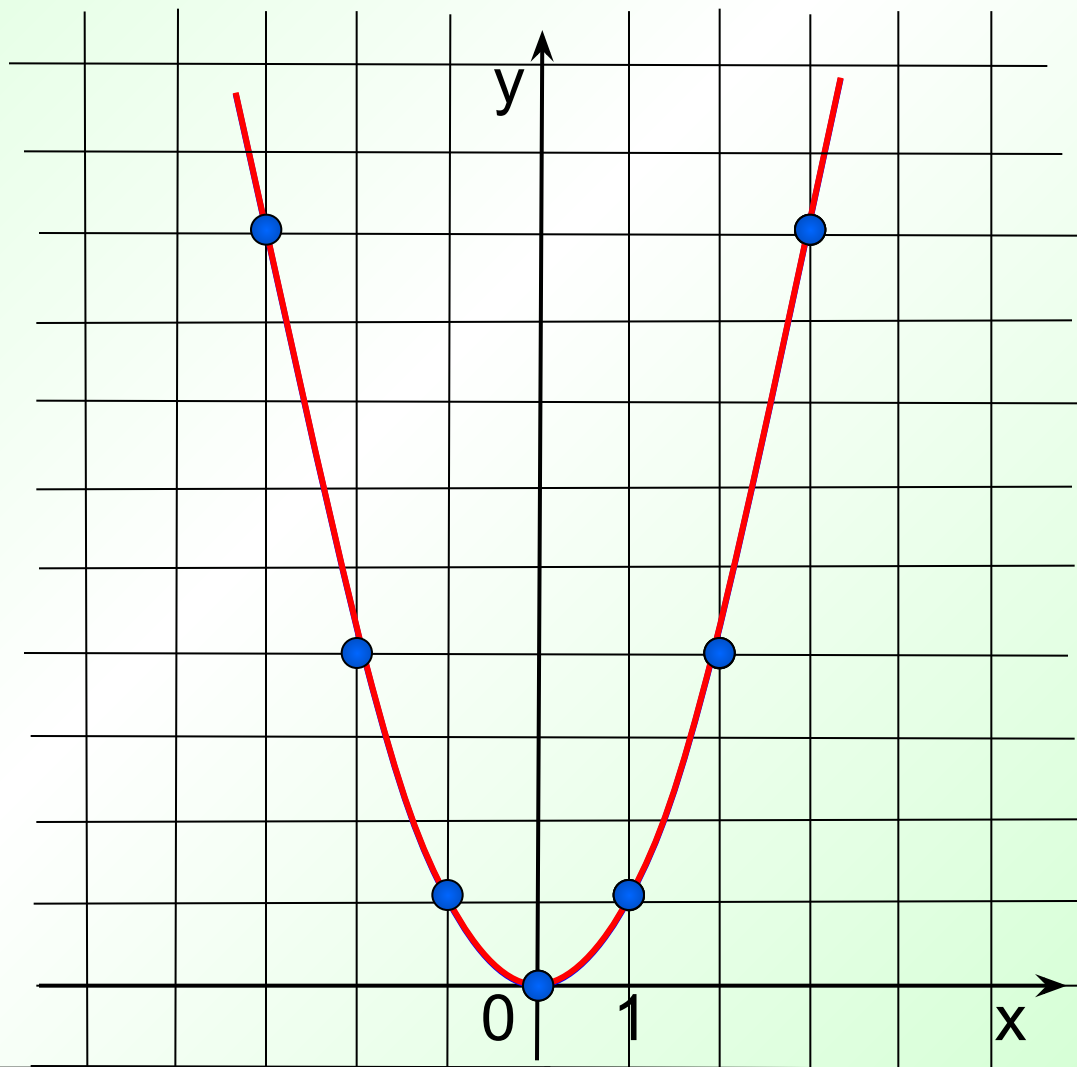
Ш.А. АЛИМОВ

## Квадратичная функция

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

$$y = x^2$$

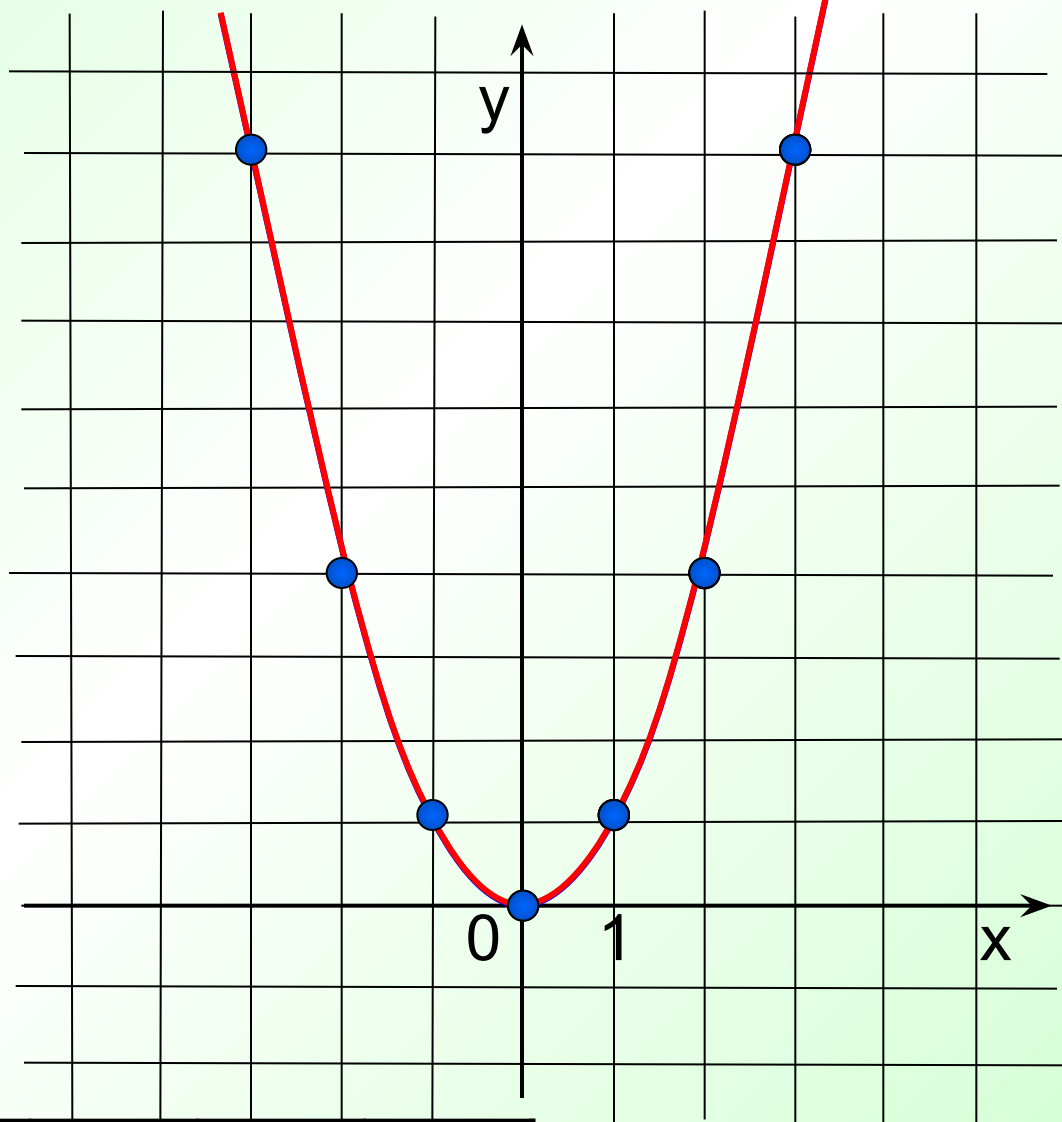
$$y = x^2 + 3$$



<b>x</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>y</b>	<b>12</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>12</b>

$$y = x^2$$

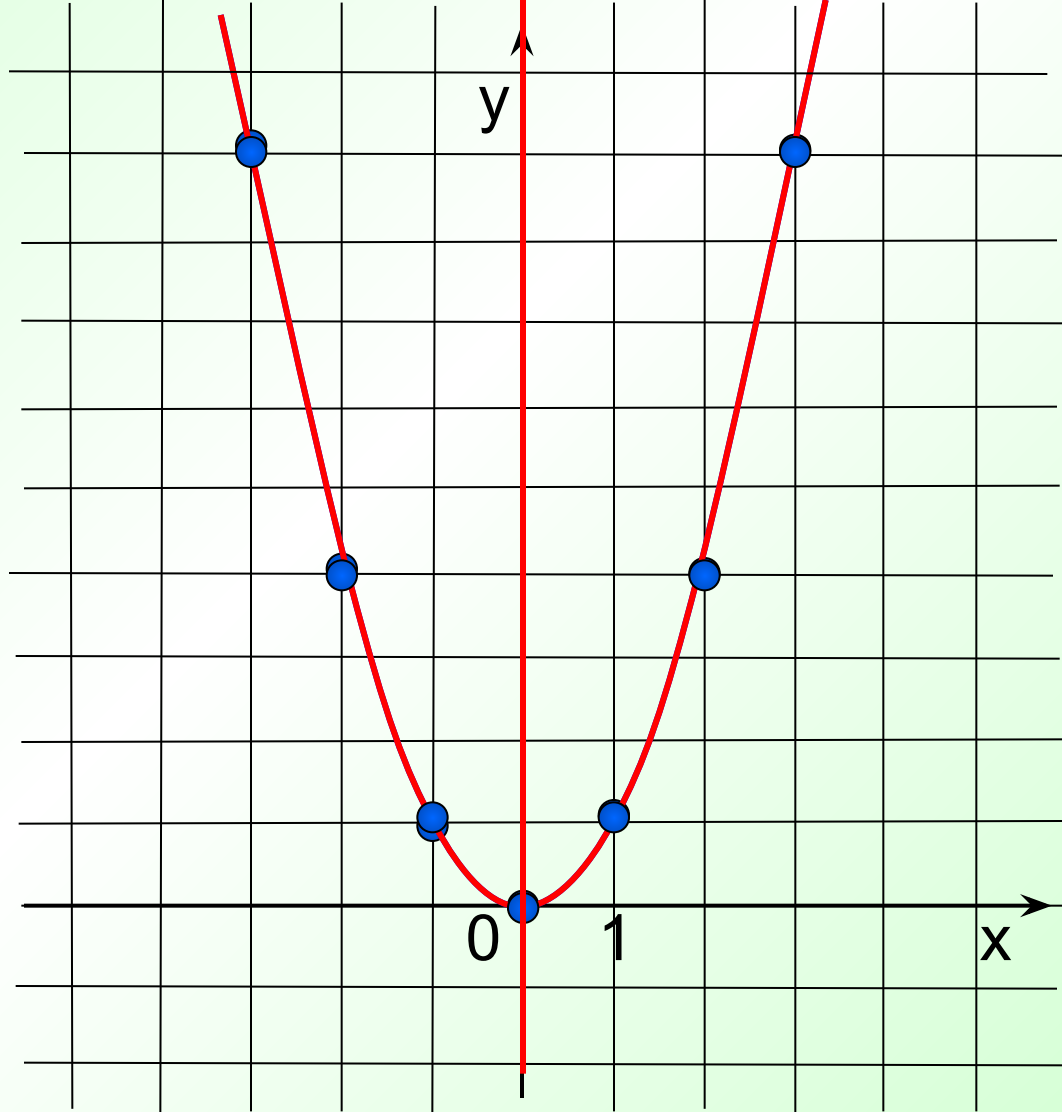
$$y = x^2 - 2$$



<b>x</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>y</b>	<b>7</b>	<b>4</b>	<b>1</b>	<b>-2</b>	<b>-1</b>	<b>4</b>	<b>9</b>

$$y = x^2$$

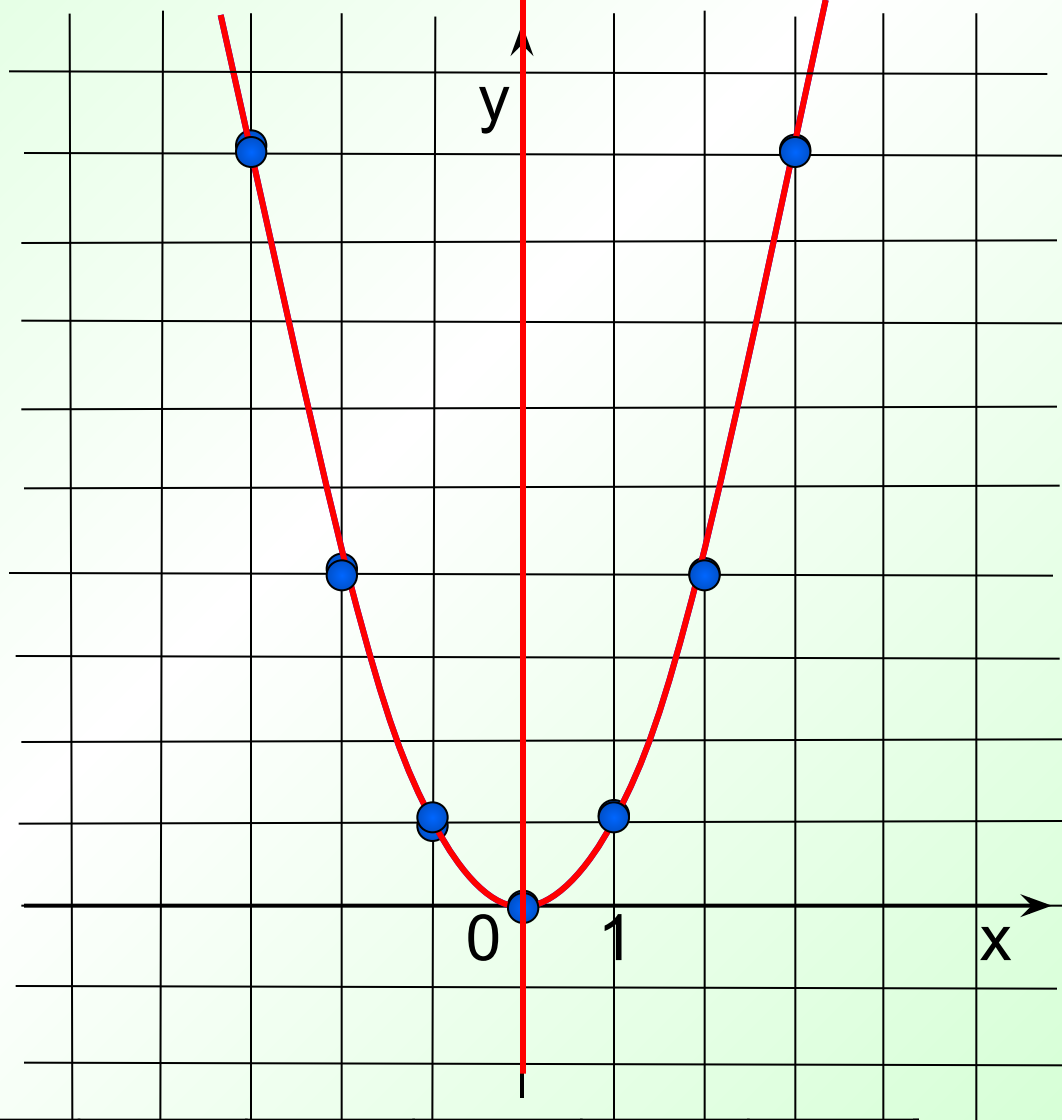
$$y = (x - 2)^2$$



<b>x</b>	<b>-3</b>	<b>-2</b>	<b>-1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>y</b>	<b>9</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>9</b>	<b>16</b>	<b>25</b>

$$y = x^2$$

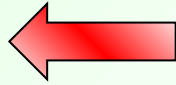
$$y = (x + 2)^2$$



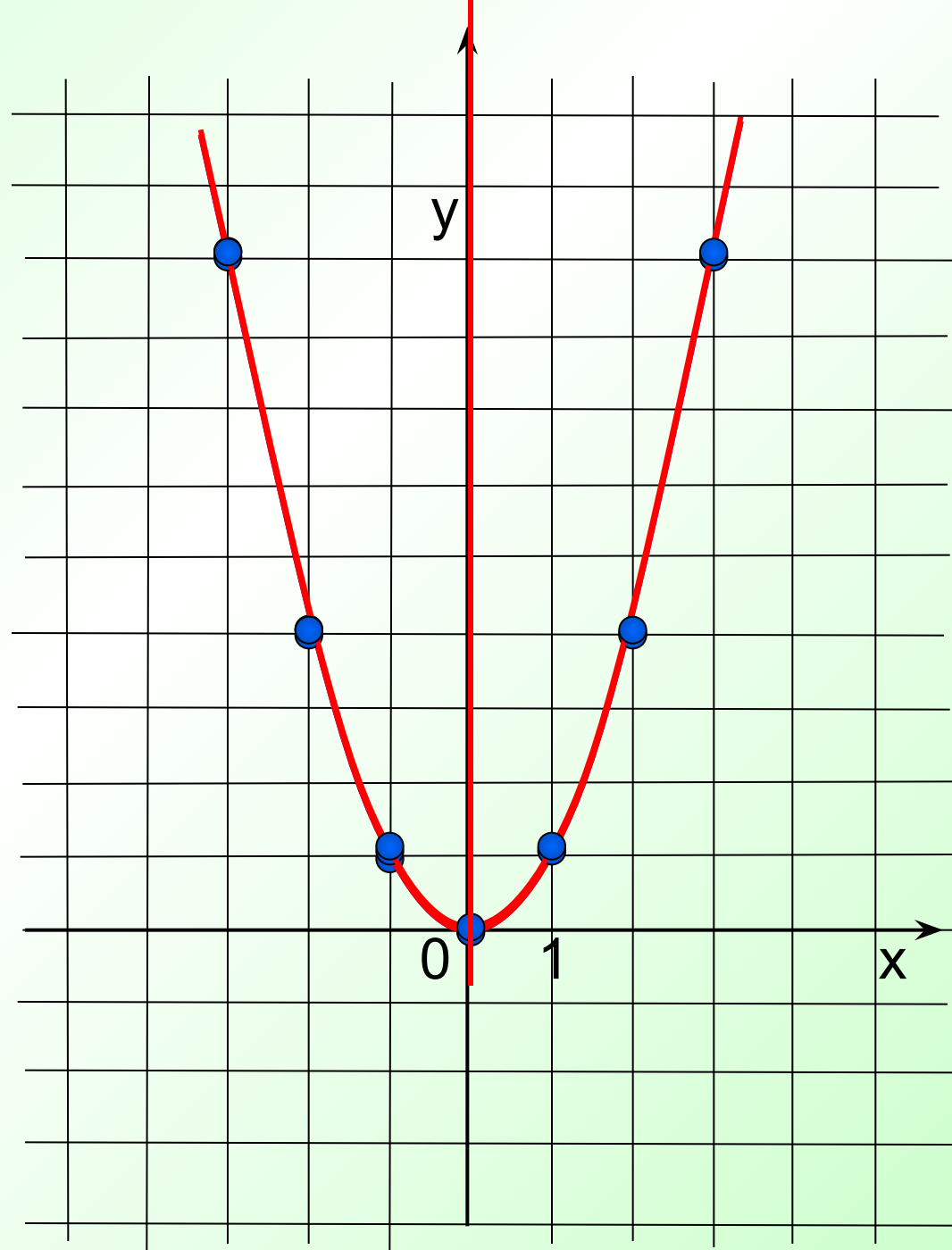
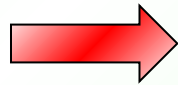
- 5	<del>- 4</del>	- 3	- 2	- 1	0	1	2	3
9	<del>4</del>	9	<del>4</del>	1	<del>0</del>	9	<del>16</del>	<del>25</del>

$$y = x^2$$

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

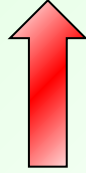


$$y = (x - 3)^2$$

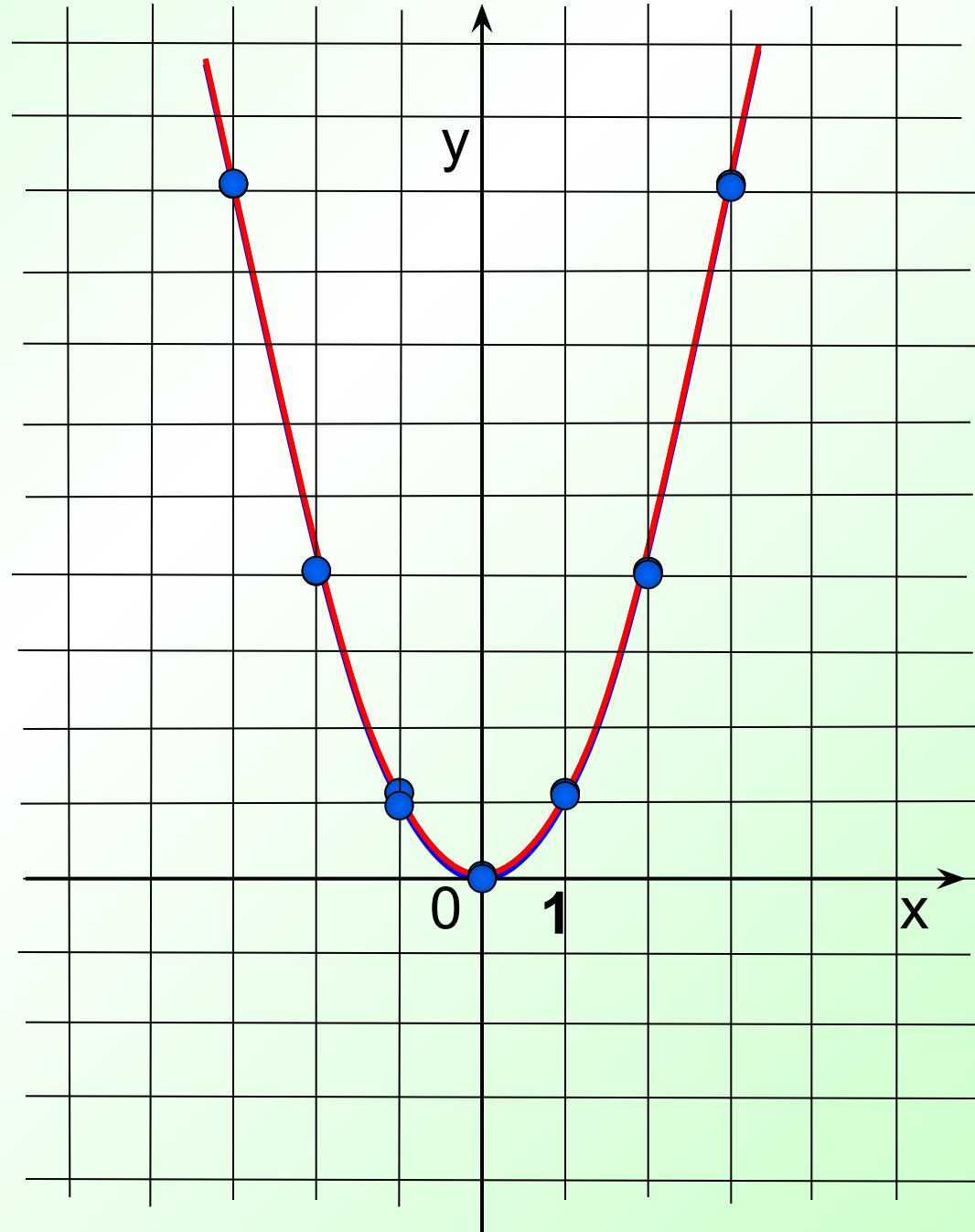
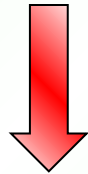


$$y = x^2$$

$$y = x^2 + 4$$

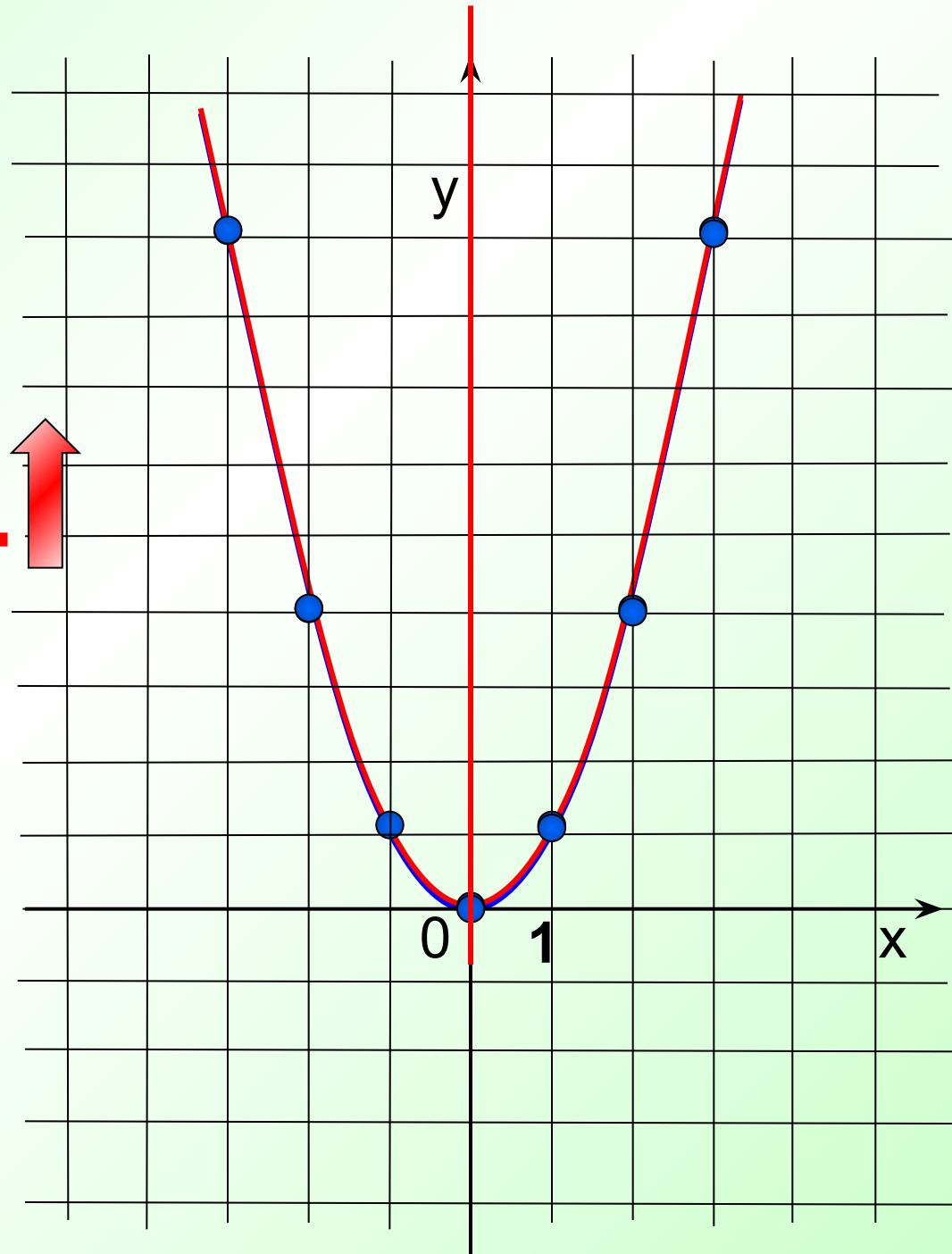
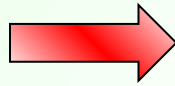


$$y = x^2 - 3$$



$$y = x^2$$

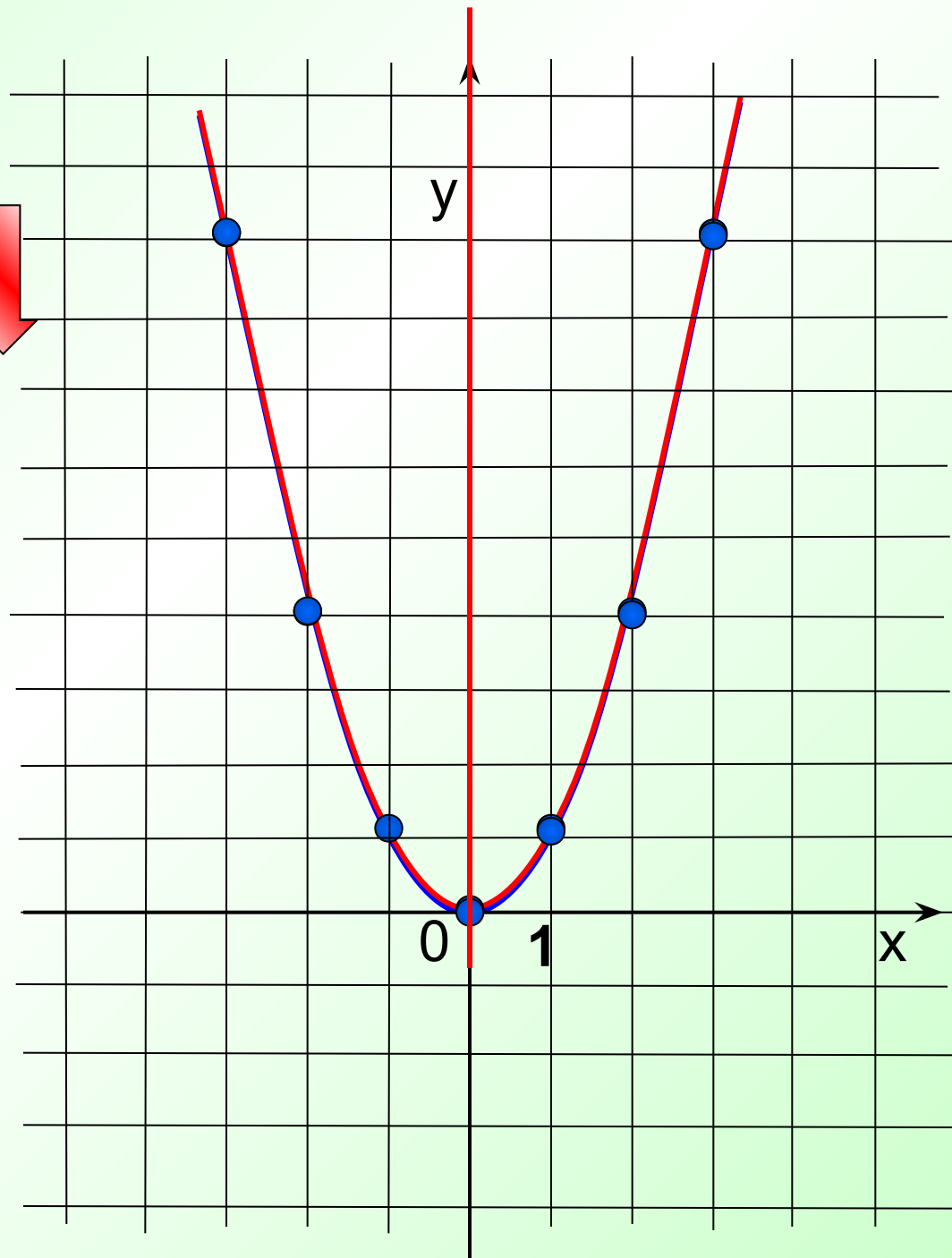
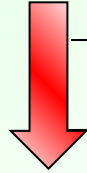
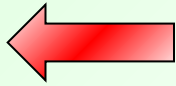
$$y = (x-2)^2 + 4$$





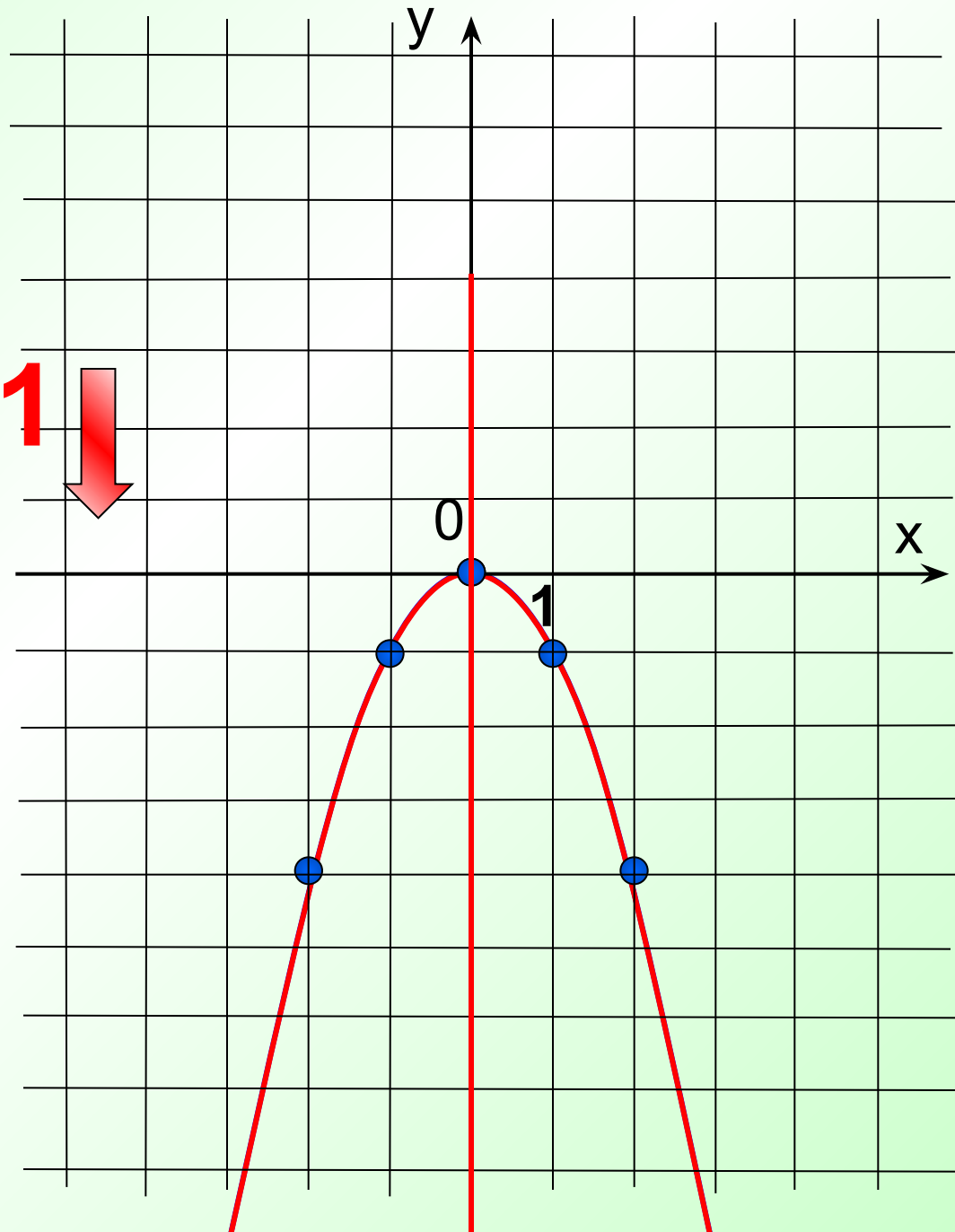
$$y = x^2$$

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

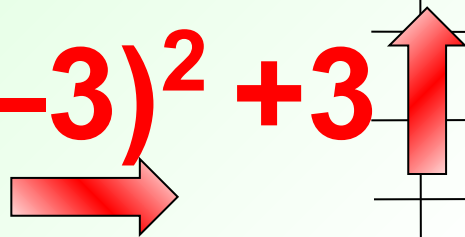


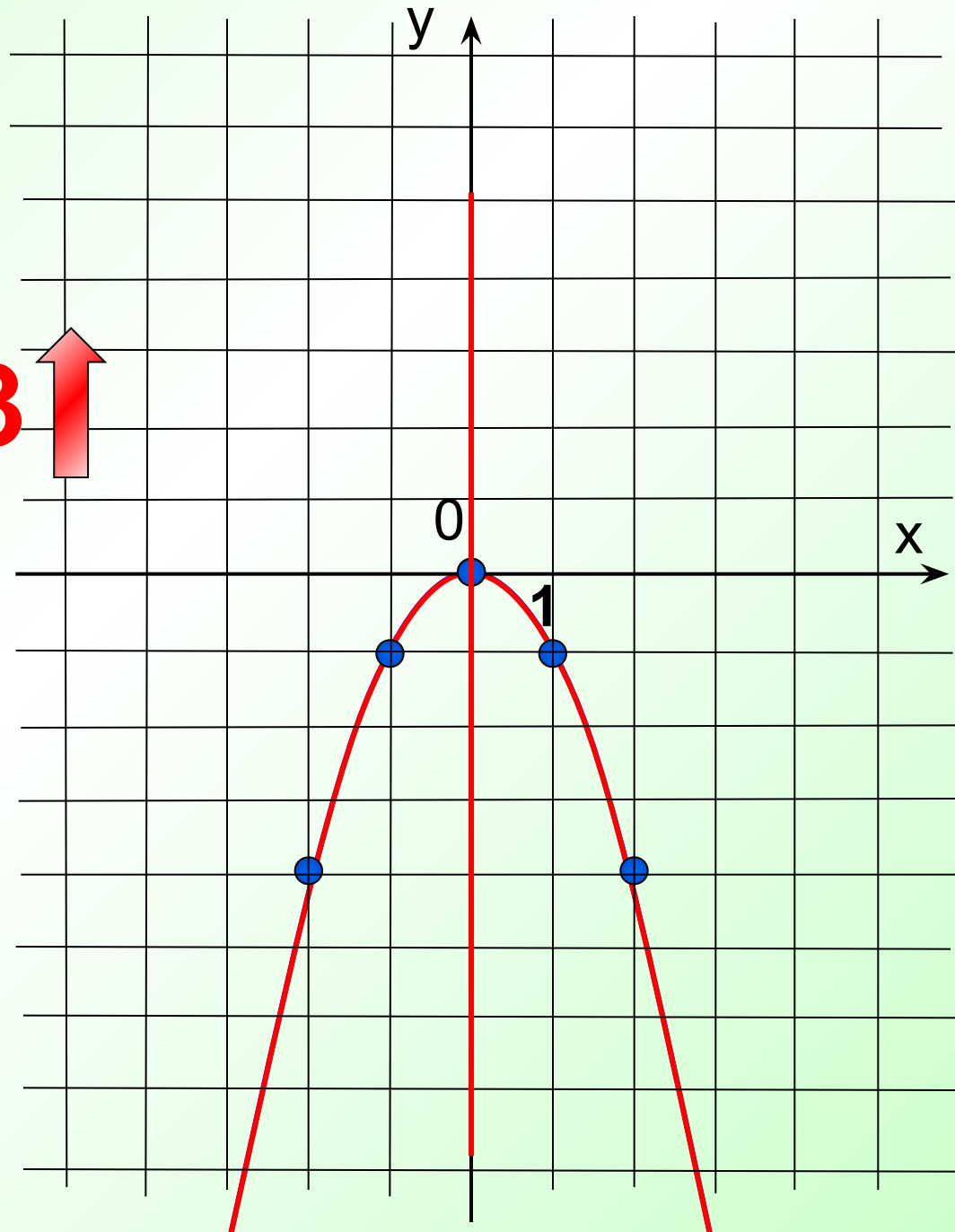
$$y = -x^2$$

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



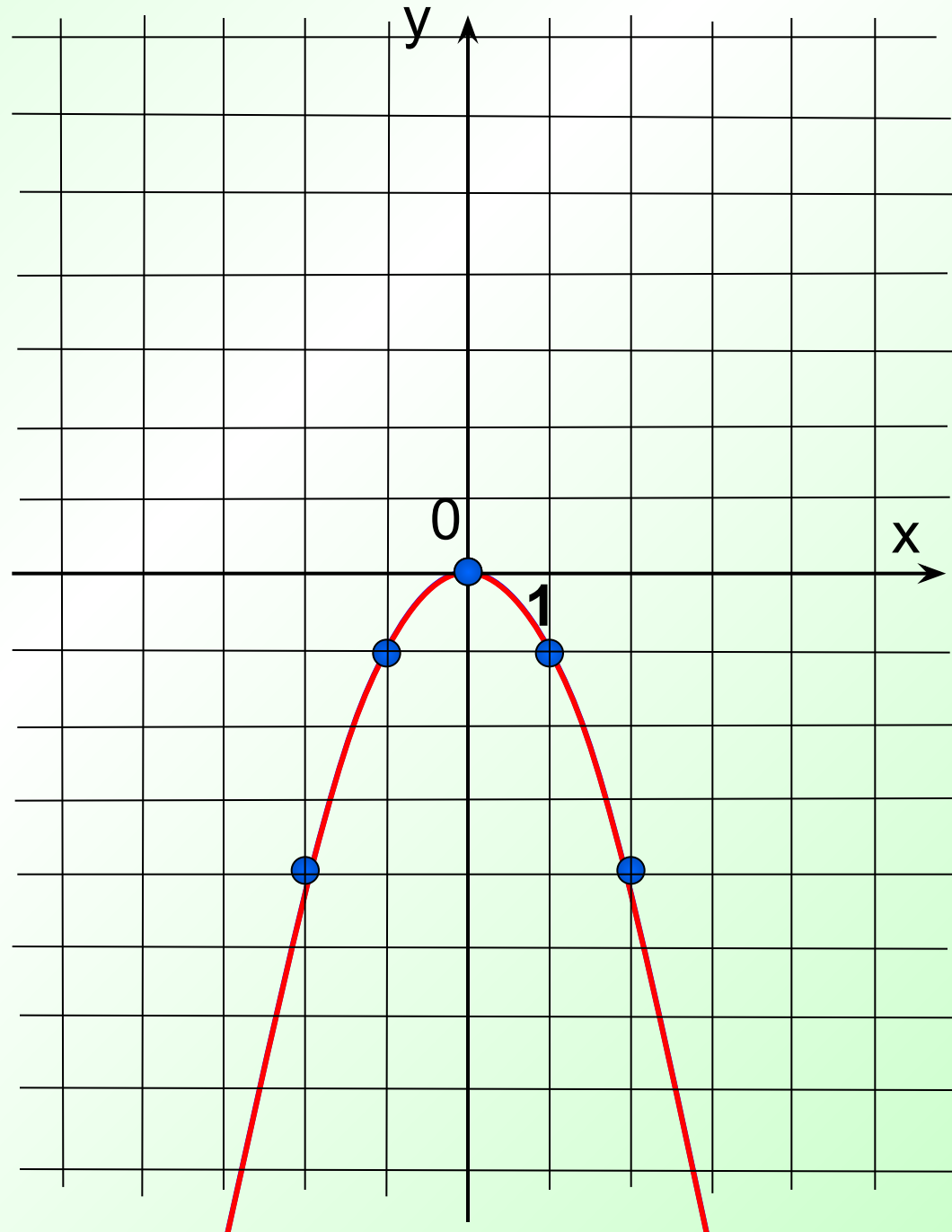
$$y = -x^2$$

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




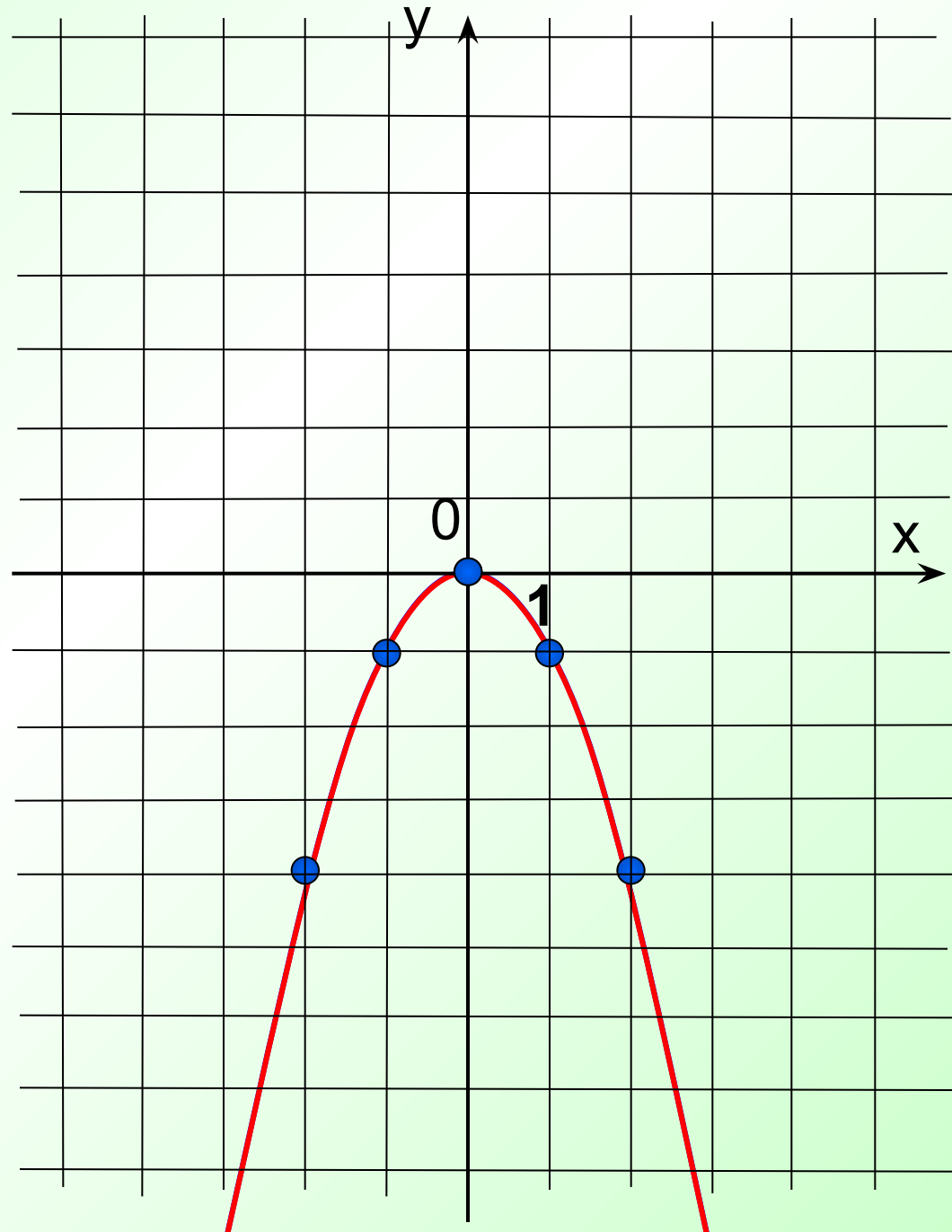
$$y = -x^2$$

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

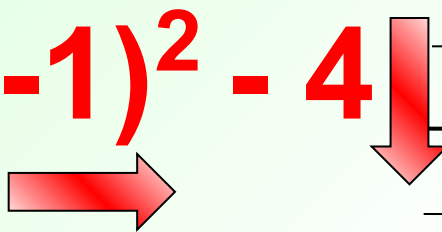


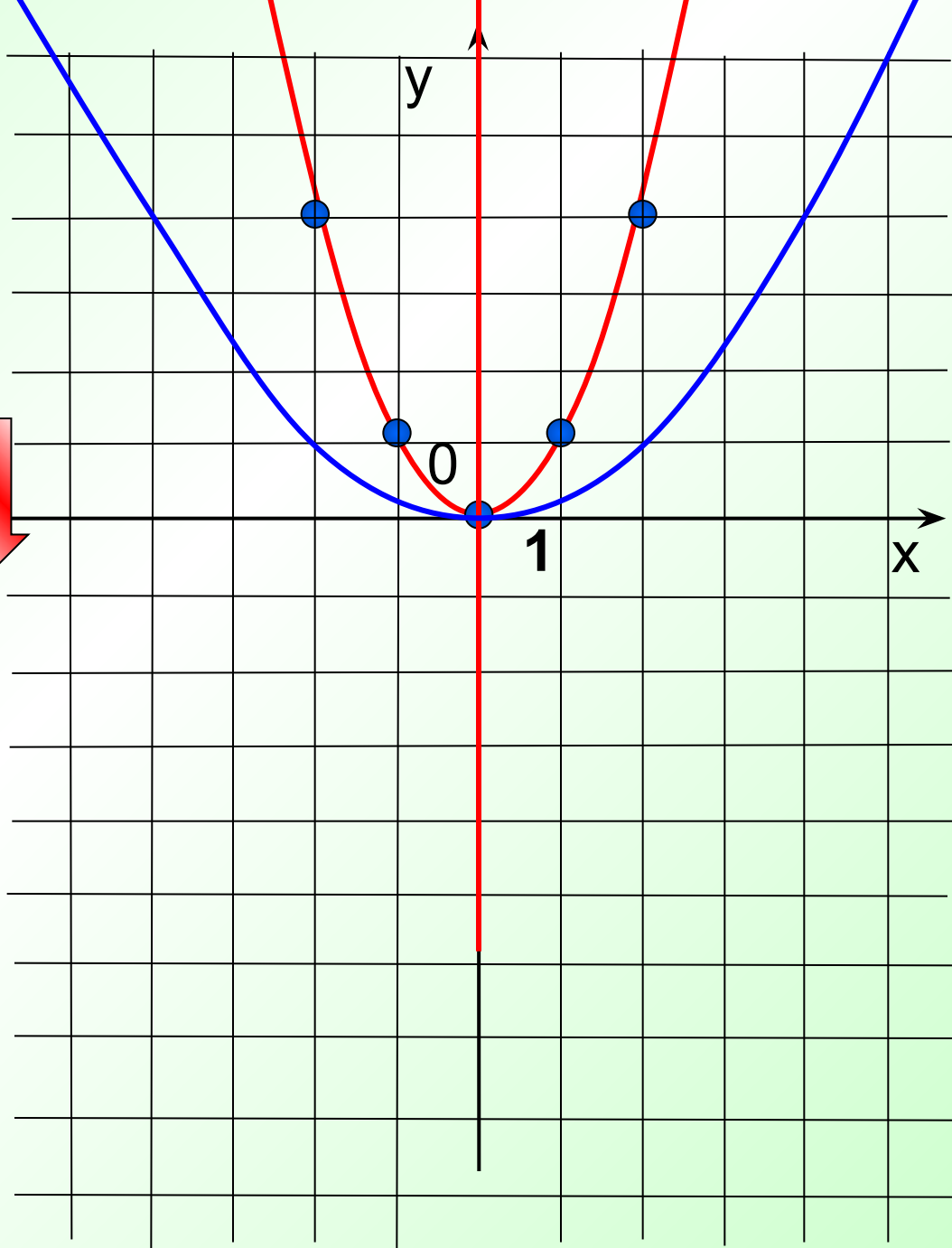
$$y = -3x^2$$

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



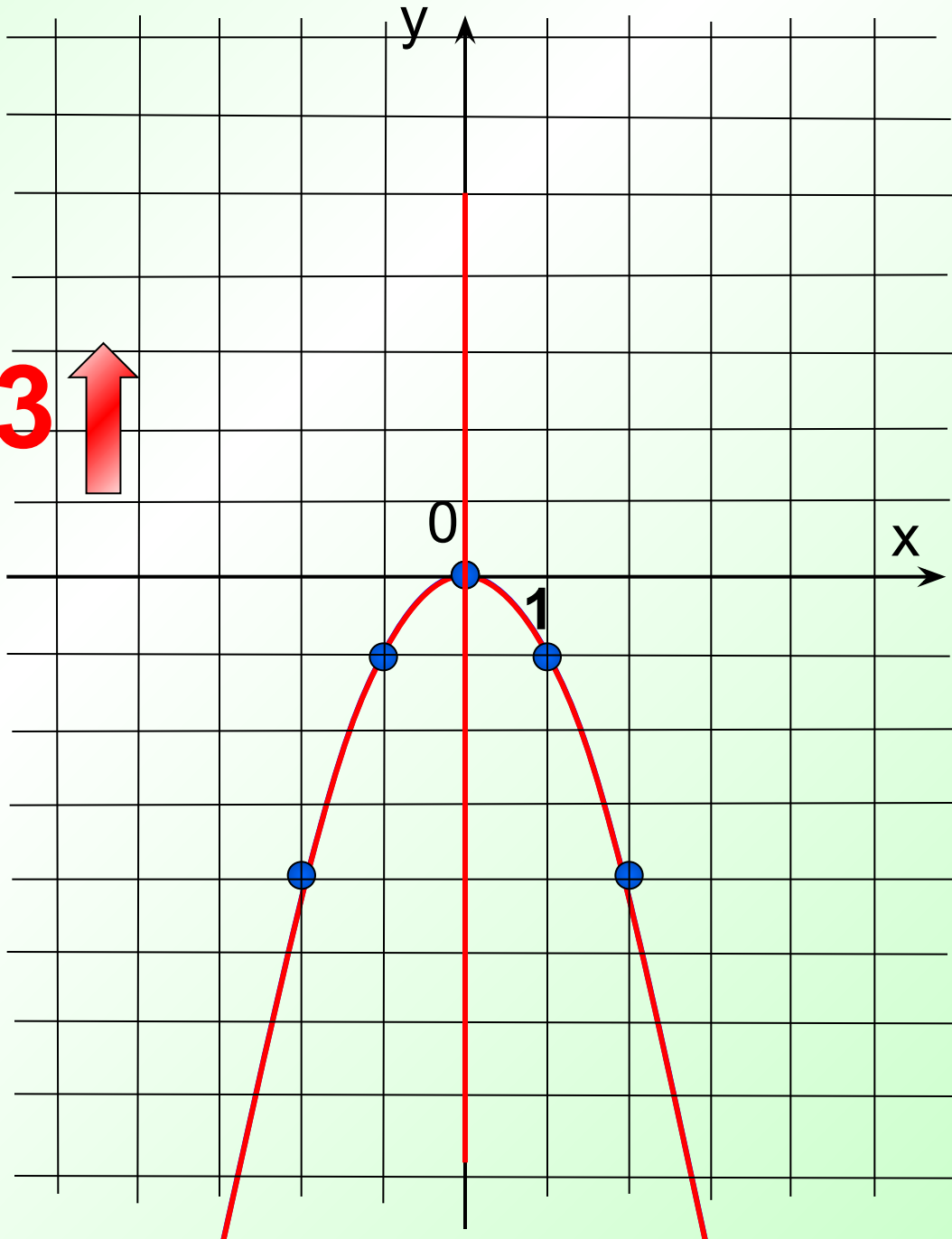
$$y = \frac{1}{4}x^2$$

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




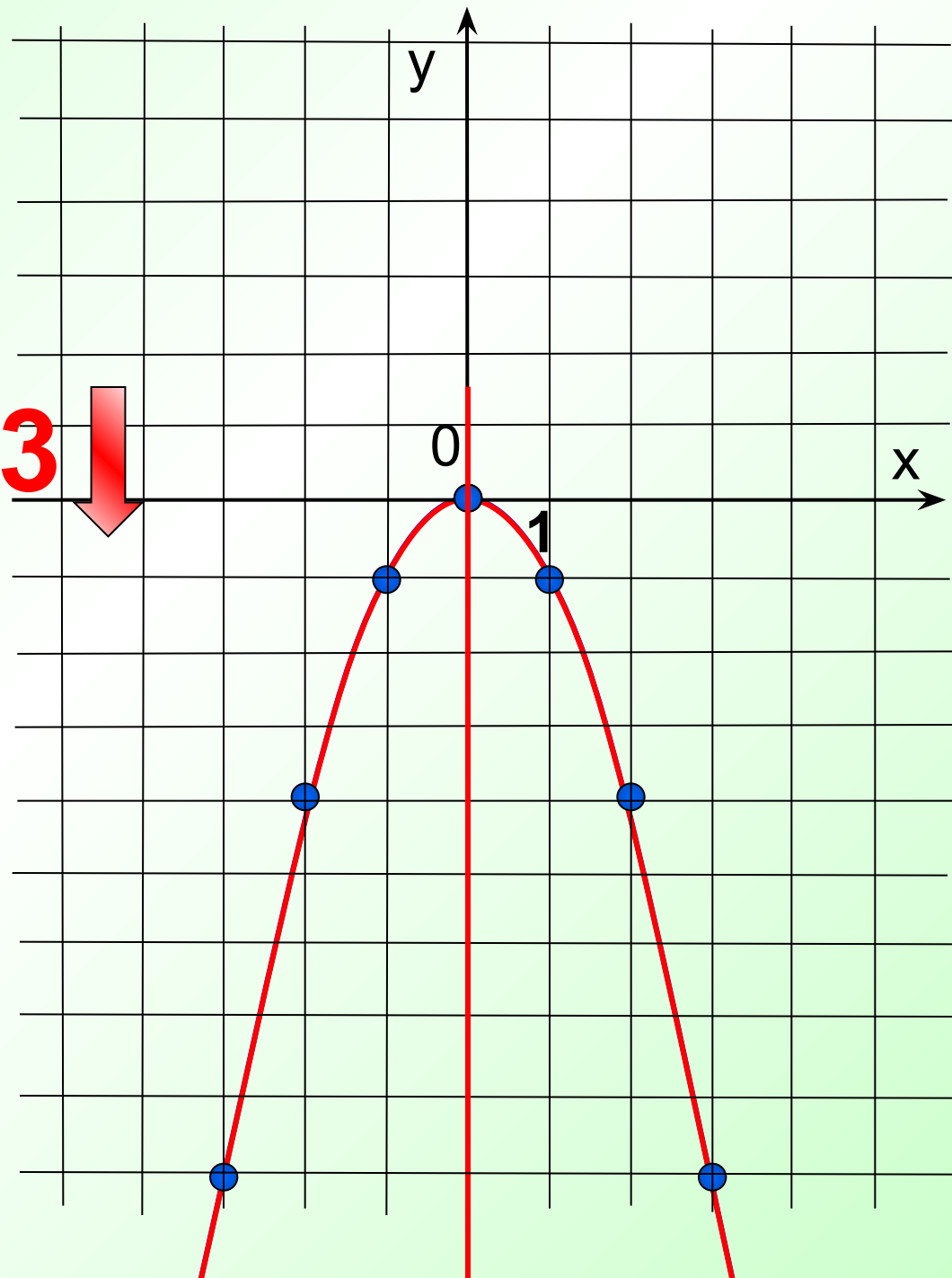
$$y = -2x^2$$

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



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

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





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









Вершина параболы  $(x_0; y_0)$

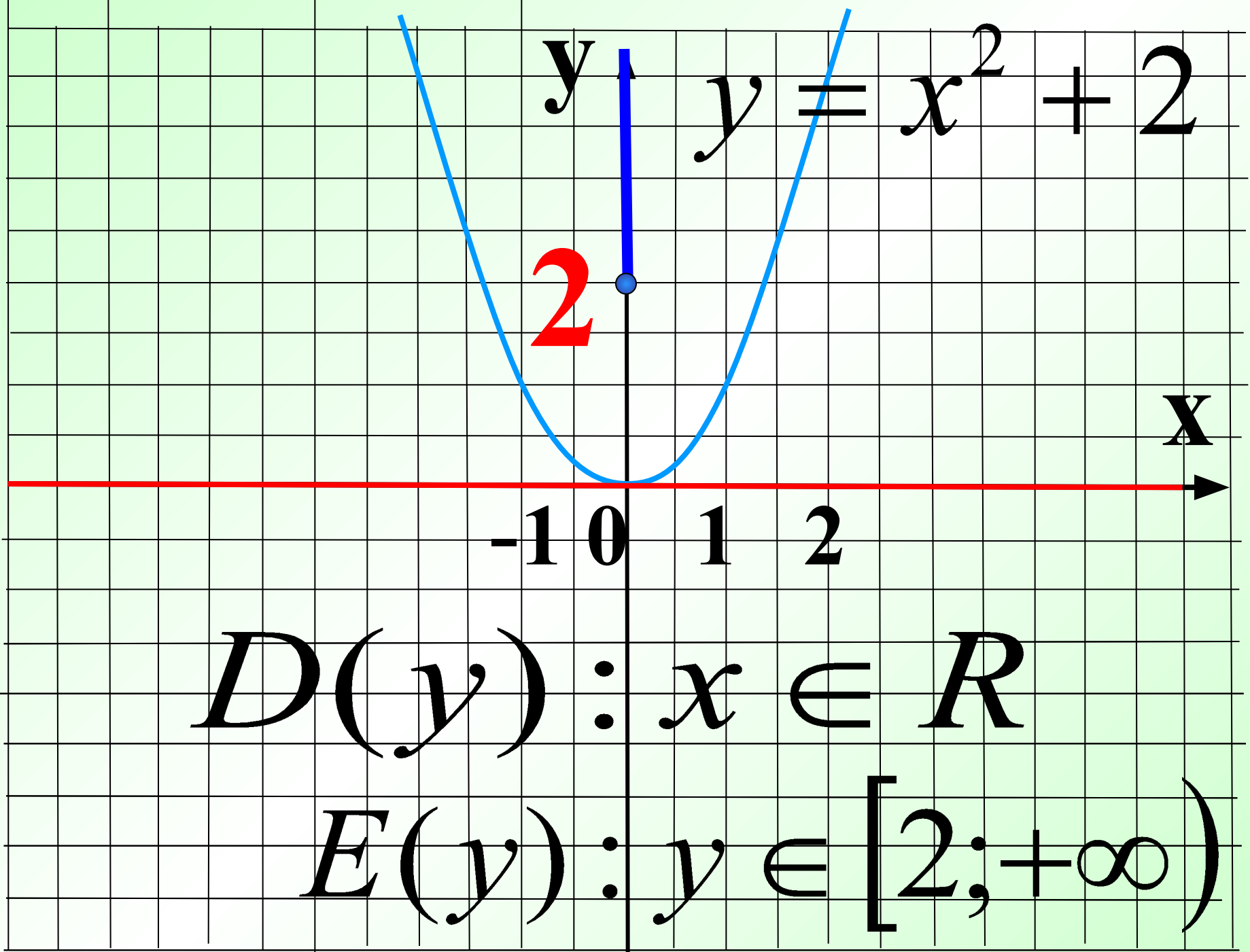
Ось симметрии  $x = x_0$

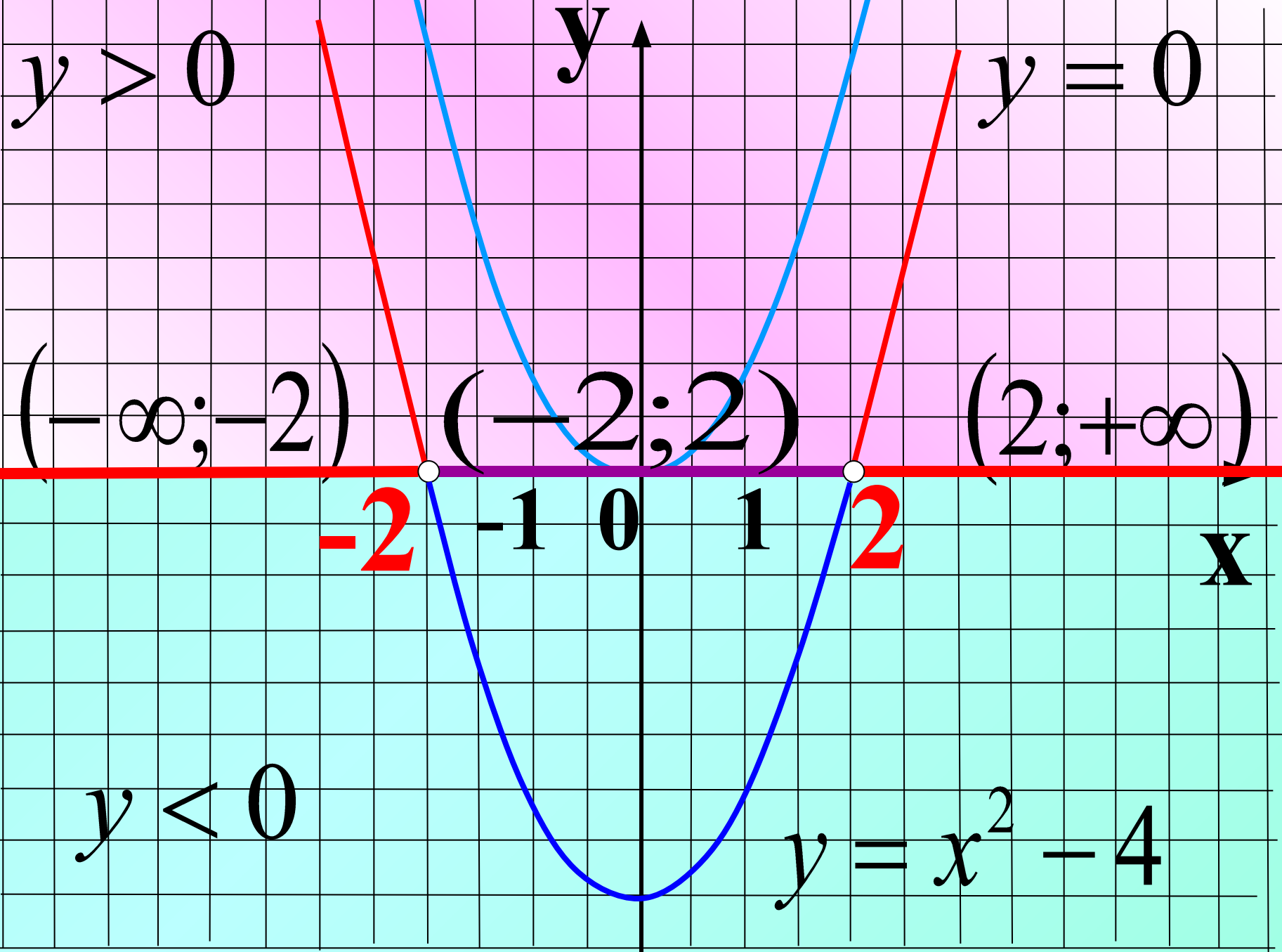
Шаблон  $y = ax^2$

$a > 0$ , то ветви направлены вверх

$a < 0$ , то ветви направлены вниз

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





$y > 0$

$y$

$y = 0$

$(-\infty; -2)$

$(-2; 2)$

$(2; +\infty)$

$-2$

$-1$

$0$

$1$

$2$

$x$

$y < 0$

$y = x^2 - 4$



**y**

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

$(-\infty; -2]$

$[-2; +\infty)$

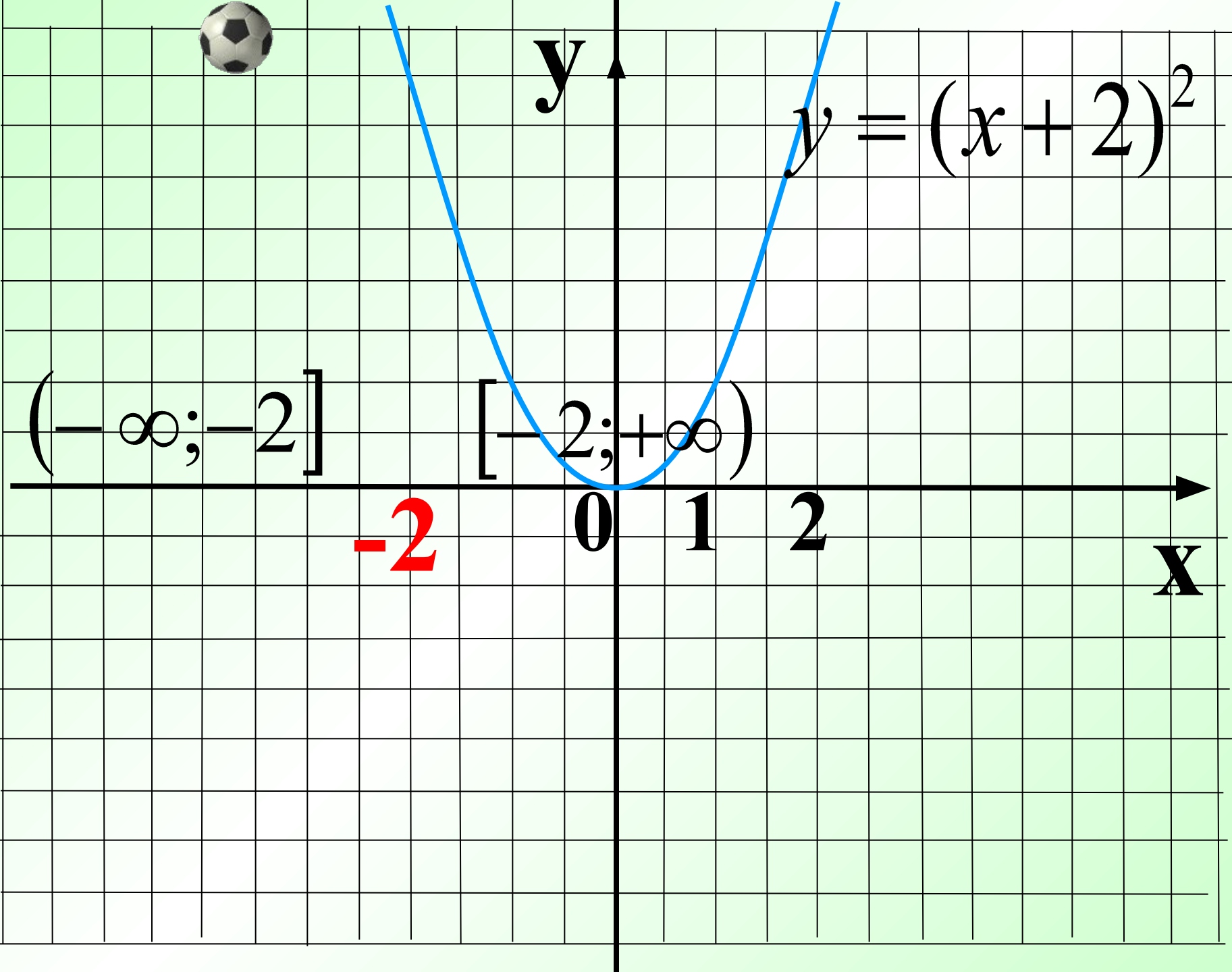
**-2**

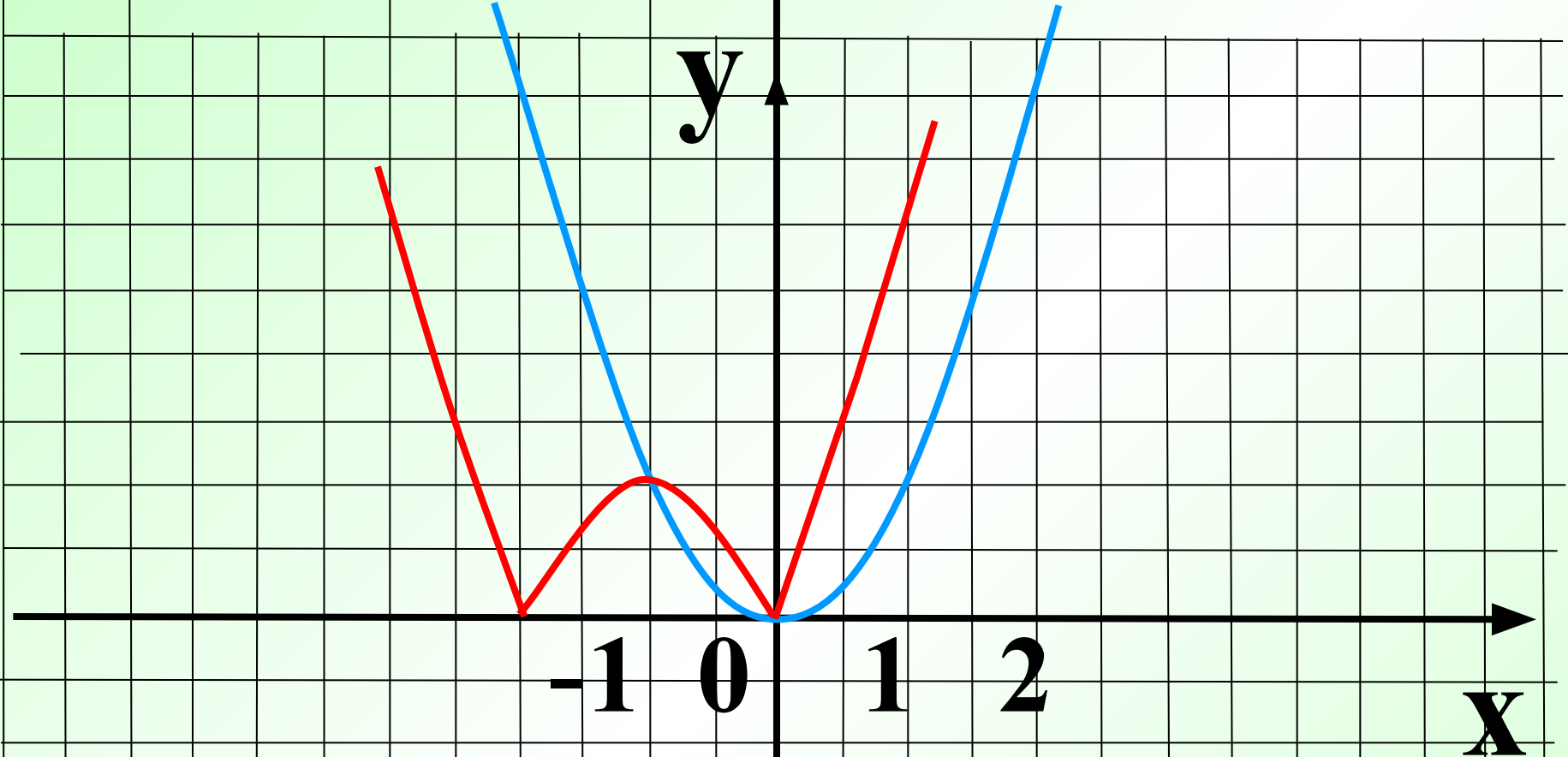
**0**

**1**

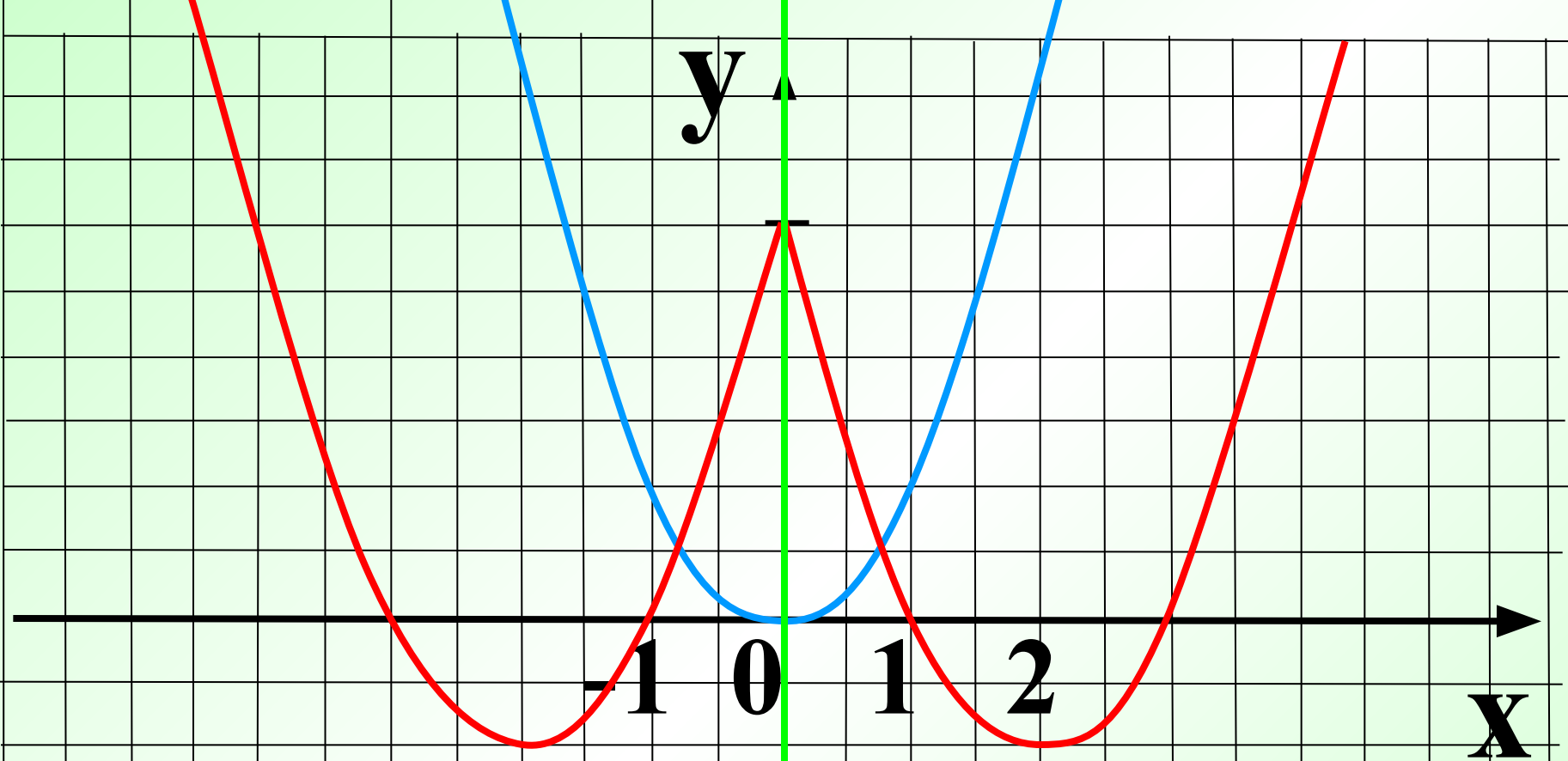
**2**

**x**





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



$$y = (|x| - 2)^2 - 1$$