Draw the graph of following functions on graph paper.

i. $y = x^2$

ii. $y = x^2 + 1$

iii. $y^2 = x$

iv. $y^2 = 4x + 2$

v. $y^2 = x - 1$

vi. $x^2 = 4y$

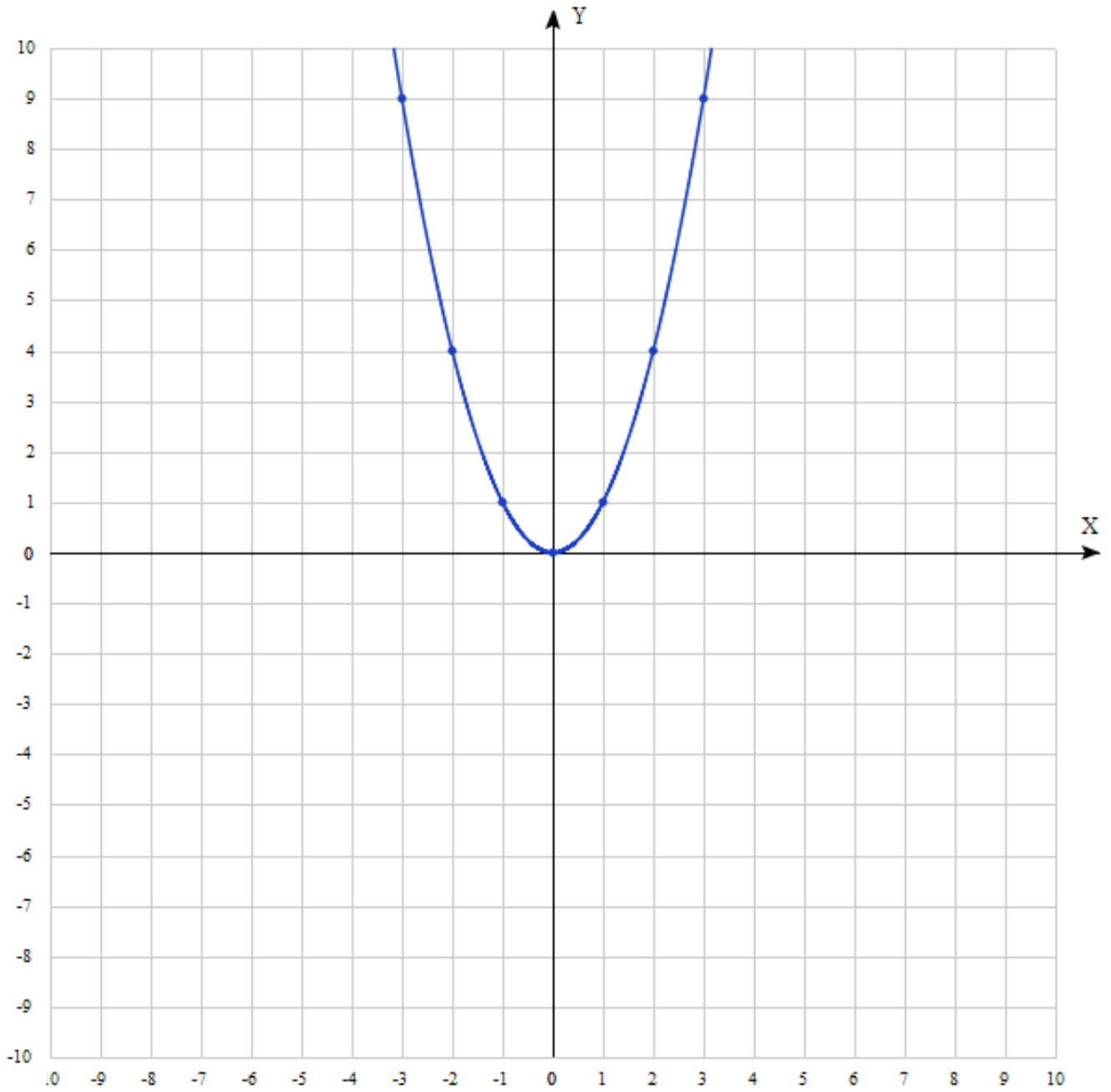vii. $x^2 = 4y - 1$

viii. $x^2 + y^2 = 1$
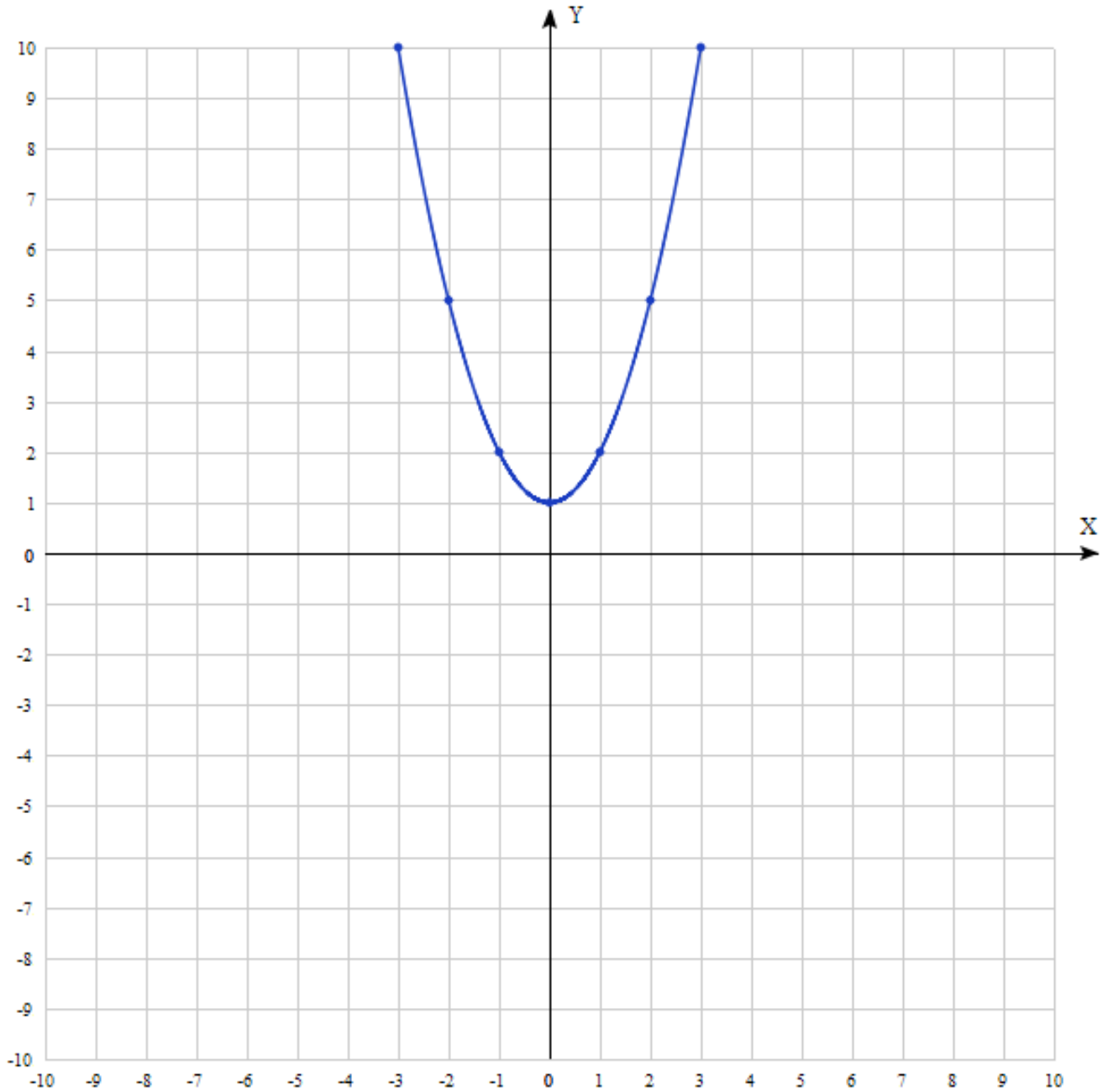
ix. $x^2 - y^2 = 1$

x. $x^2 + y^2 = 0$

i. $y = x^2$ is a parabola, initial point O(0;0).

x	−3	−2	−1	0	1	2	3
y	9	4	1	0	1	4	9

ii. $y = x^2 + 1$ is a parabola, initial point O(0;1).

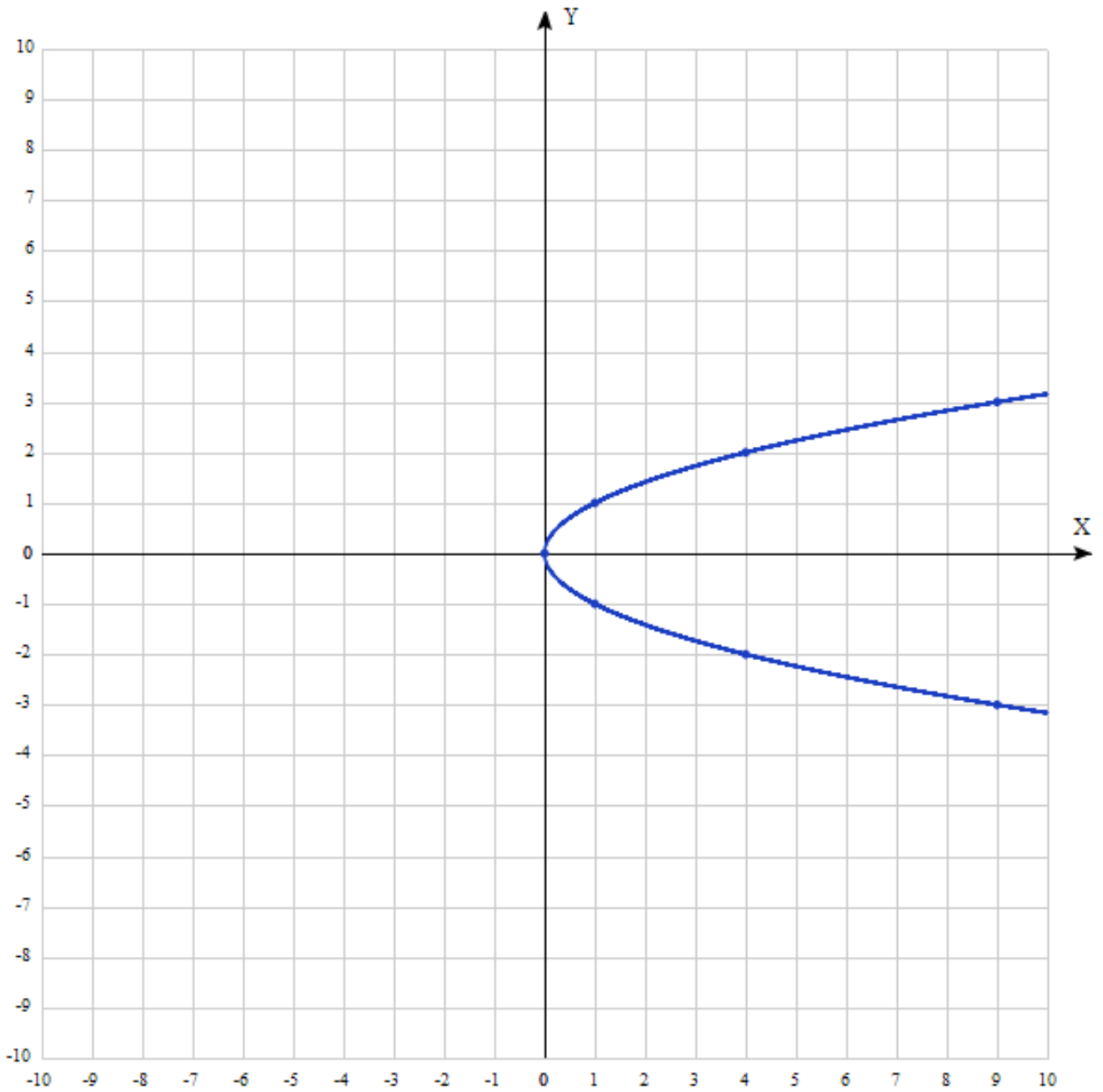| x	−3	−2	−1	0	1	2	3
y	10	5	2	0	2	5	10

iii. $y^2 = x$

$y = \begin{cases} -\sqrt{x} \\ \sqrt{x} \end{cases}$ is a parabola, initial point O(0;0).

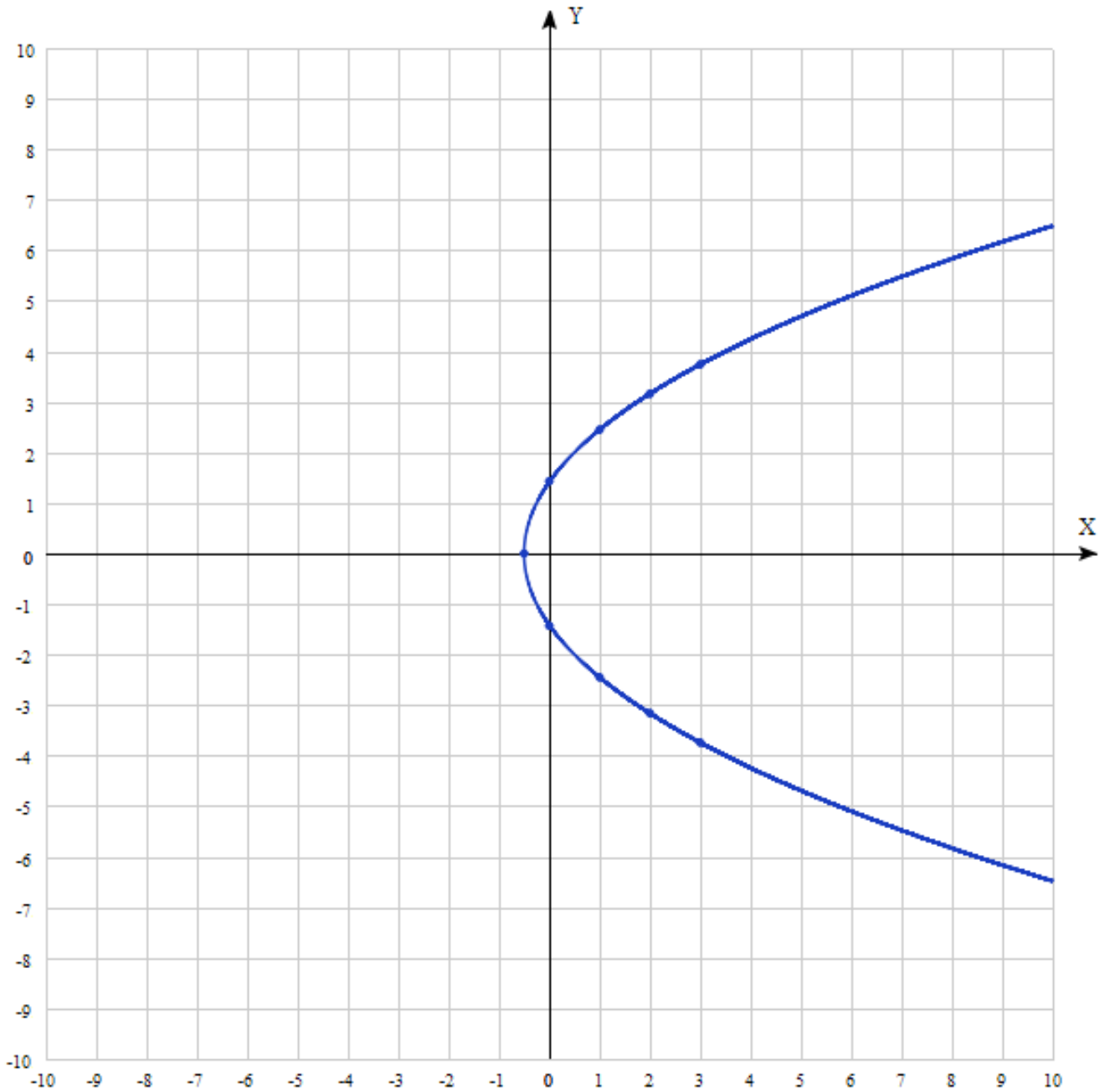| x	9	4	1	0	1	4	9
y	−3	−2	−1	0	1	2	3

iv. $y^2 = 4x + 2$

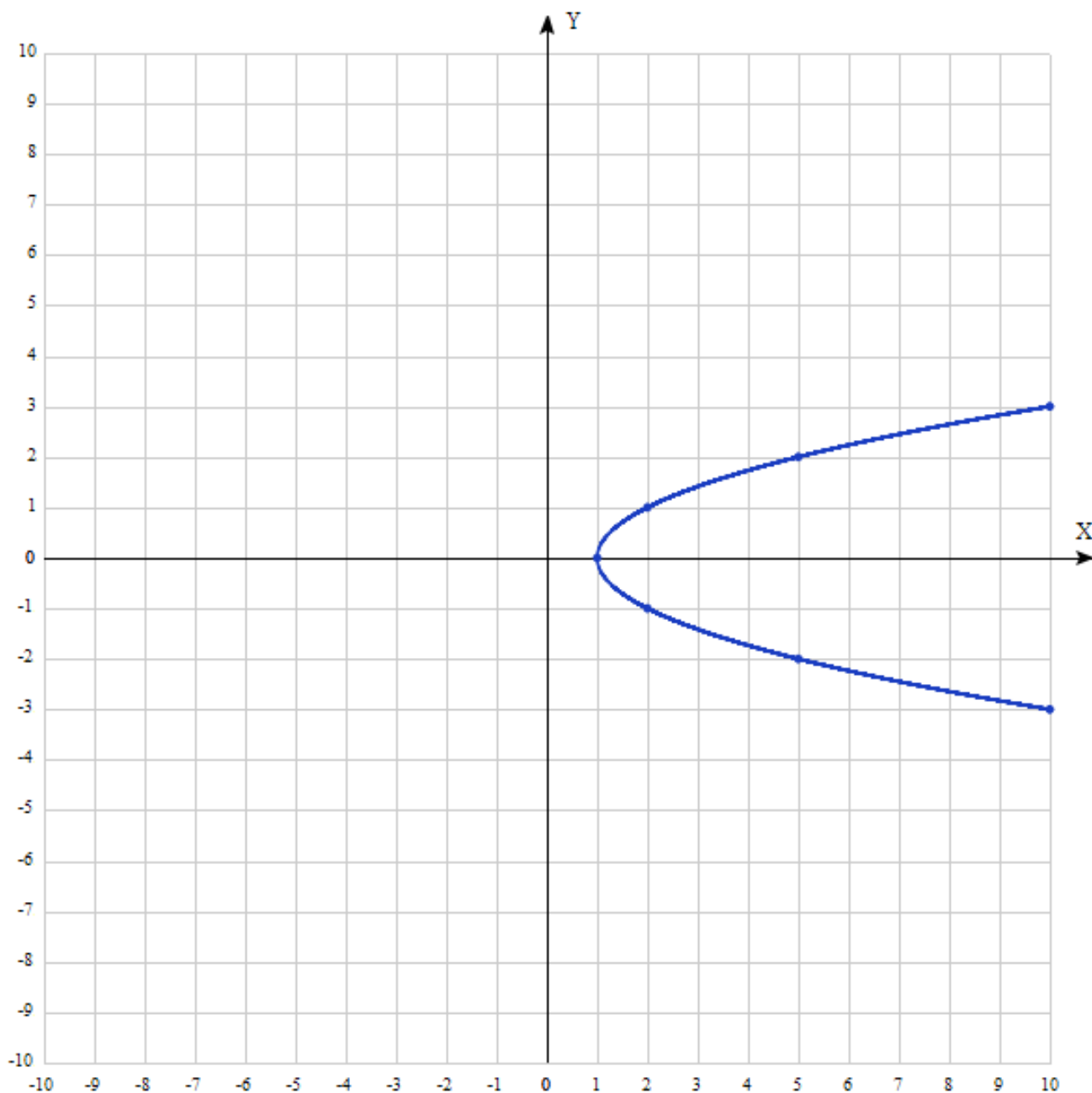$y = \begin{cases} -\sqrt{4x+2} \\ \sqrt{4x+2} \end{cases}$ –is a parabola, initial point O(0.5;0).

x	3	2	1	0.5	1	2	3
y	$-\sqrt{14}$	$-\sqrt{10}$	$-\sqrt{6}$	0	$\sqrt{6}$	$\sqrt{10}$	$\sqrt{14}$

v. $y^2 = x - 1$

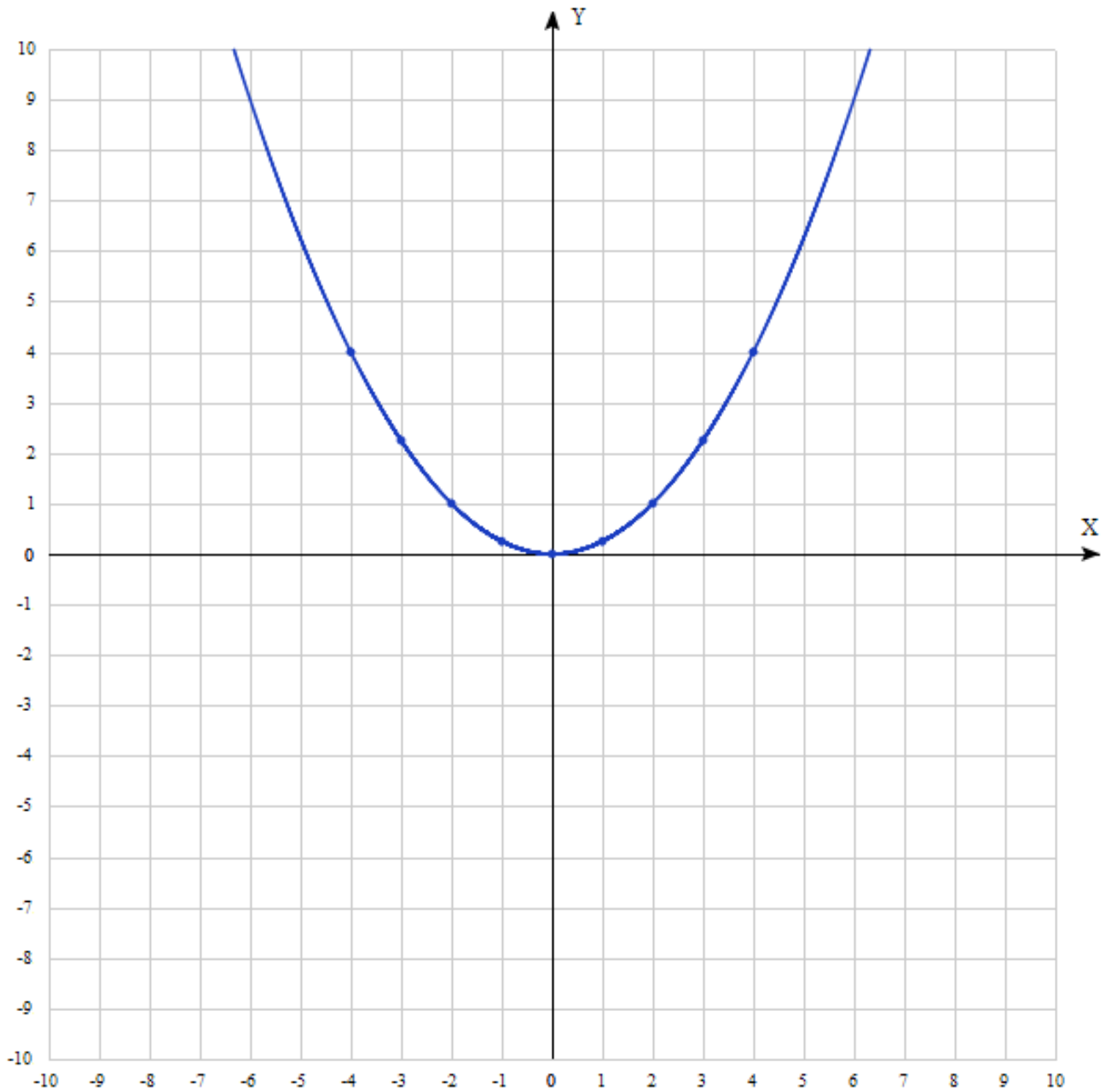$y = \begin{cases} -\sqrt{x-1} \\ \sqrt{x-1} \end{cases}$ is a parabola, initial point O(1;0).

x	10	5	2	1	2	5	10
y	−3	−2	−1	0	1	2	3

vi. $x^2 = 4y$

$y = \dfrac{x^2}{4}$ is a parabola, initial point O(0;0).

x	−4	−3	−2	−1	0	1	2	3	4
y	4	2.25	1	0.25	0	0.25	1	2.25	4

vii. $x^2 = 4y - 1$

$y = \dfrac{x^2 + 1}{4}$ is a parabola, initial point O(0;0.25).

x	−4	−3	−2	−1	0	1	2	3	4
y	4.25	2.5	1.25	0.5	0.25	0.5	1.25	2.5	4.25
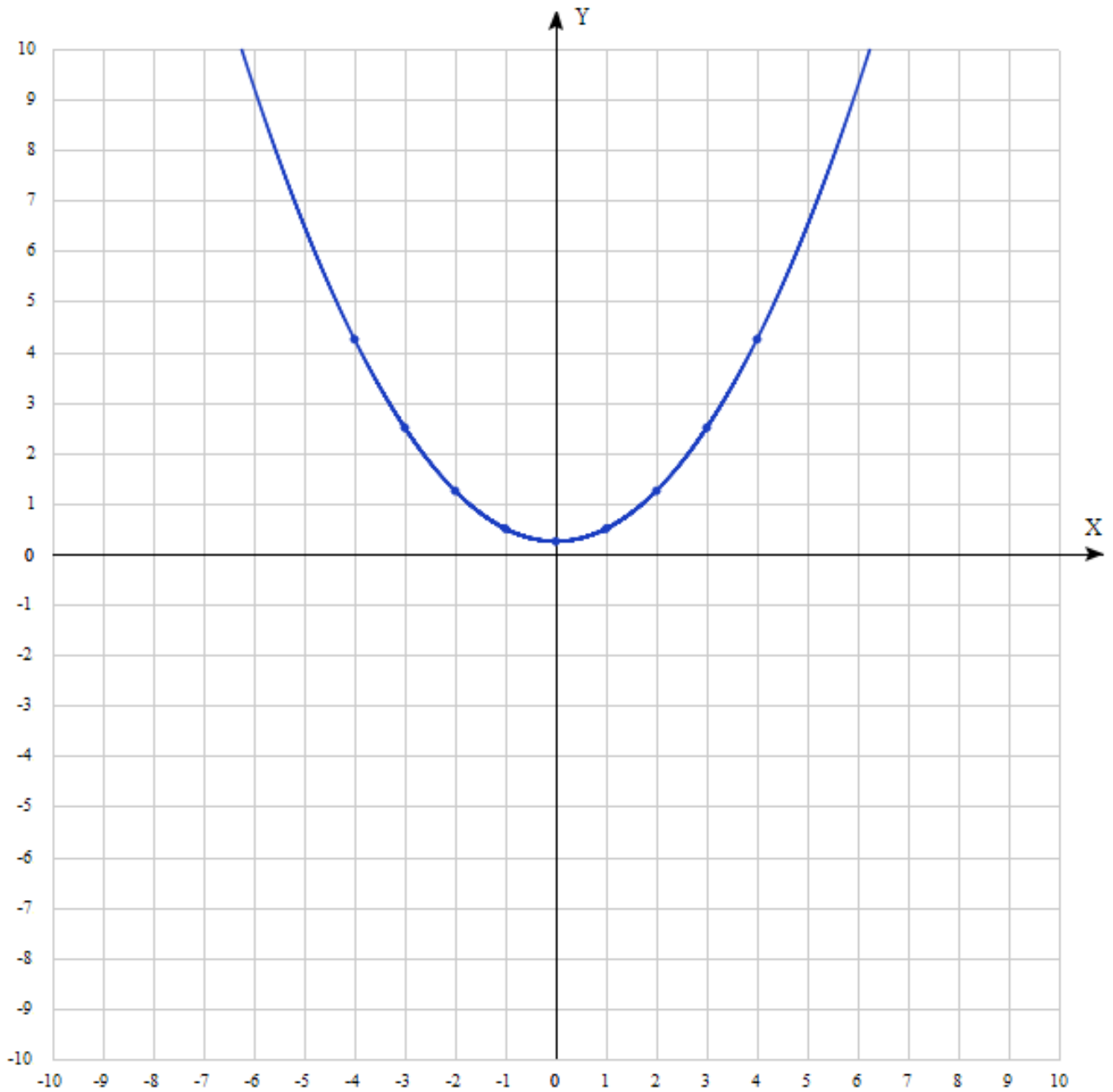
viii. $x^2 + y^2 = 1$ is a circle, center O(0;0) and radius r = 1.
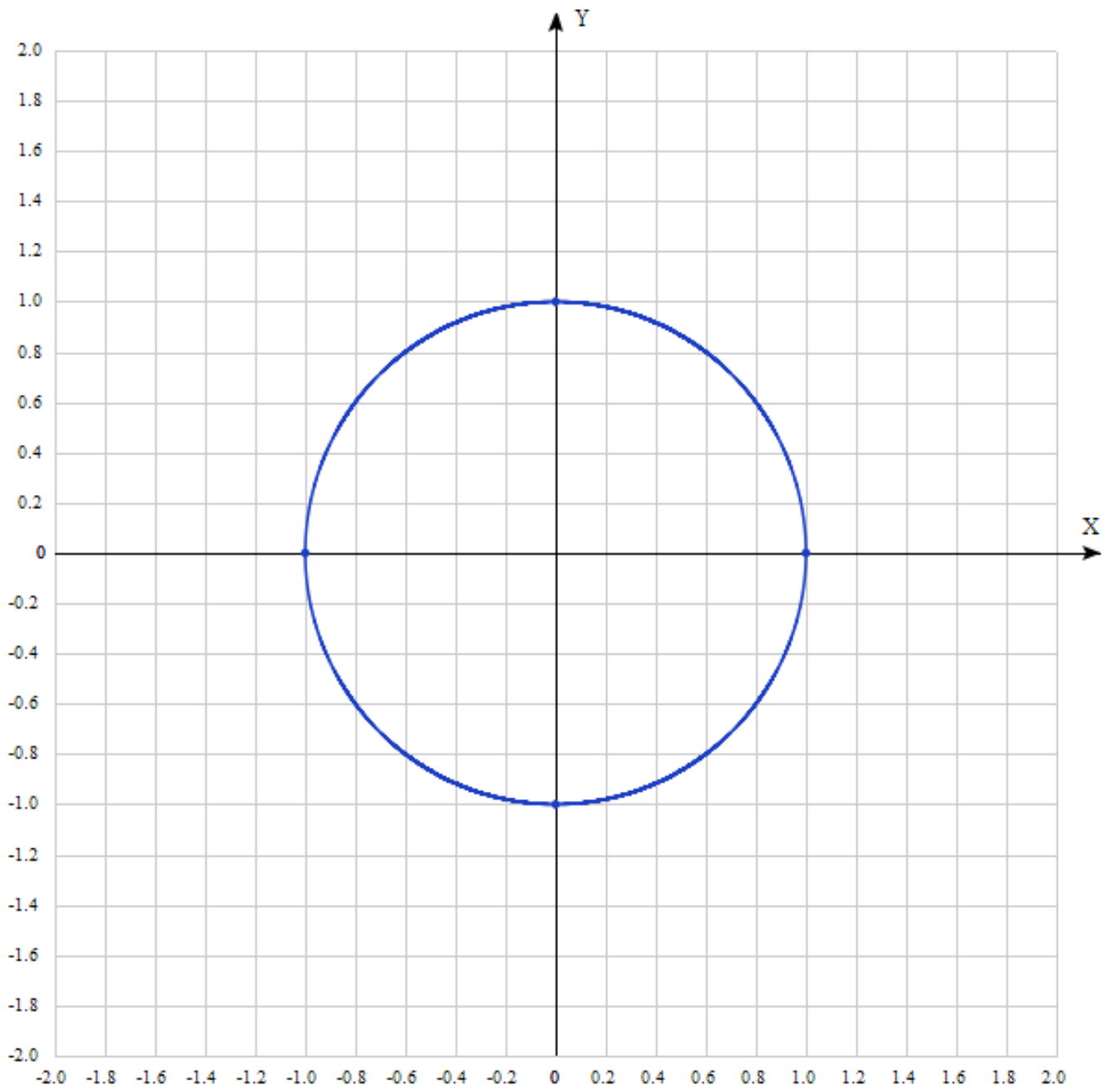
ix. $x^2 - y^2 = 1$ is a hyperbola.

x	−4		−3		−2		−1	1	2		3		4	
y	$-\sqrt{15}$	$\sqrt{15}$	$-\sqrt{8}$	$\sqrt{8}$	$-\sqrt{3}$	$\sqrt{3}$	0	0	$-\sqrt{3}$	$\sqrt{3}$	$-\sqrt{8}$	$\sqrt{8}$	$-\sqrt{15}$	$\sqrt{15}$
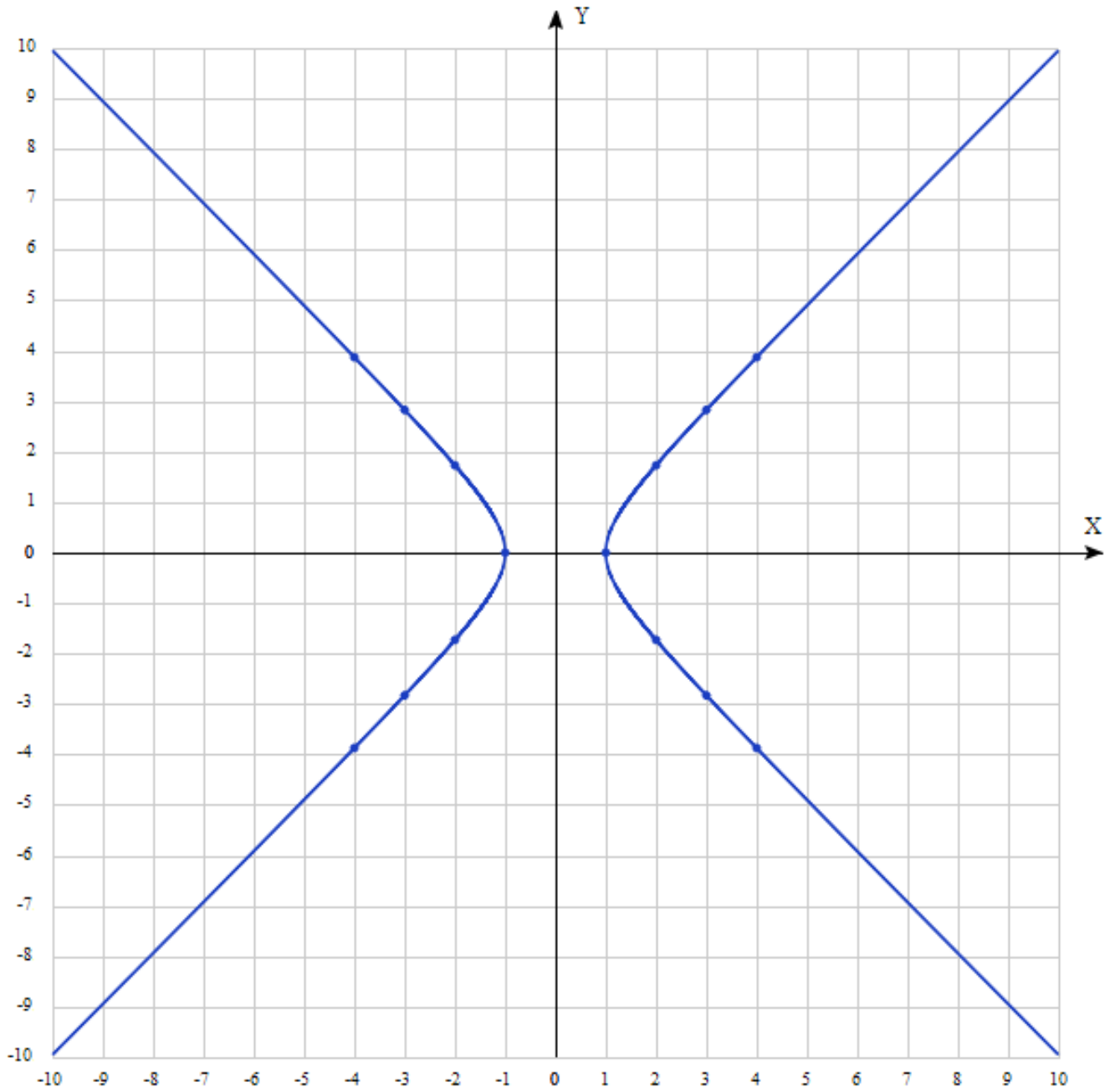
x. $x^2 + y^2 = 0$ is a degenerate circle, center O(0;0) and radius r = 0. It's a point.