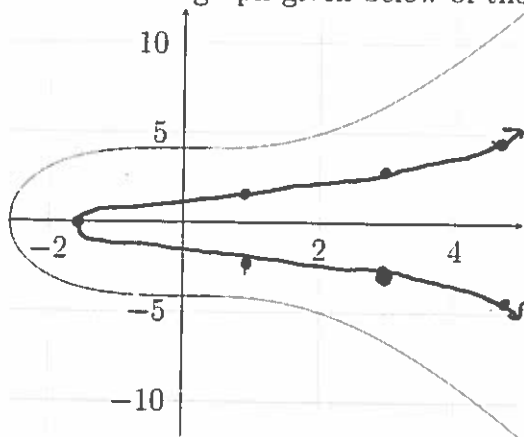


Quick Hit 3

Consider the graph given below of the equation $y^2 = x^3 + 17$.



vertical stretch by
a factor of $\frac{1}{2}$,
shift right 1

1. Draw the graph of $(2y)^2 = (x-1)^3 + 17$ on the above axes.

2. Is the point $(3, -\sqrt{44})$ on the graph of $y^2 = x^3 + 17$?

\uparrow
 x

\uparrow
 y

$$(-\sqrt{44})^2 \stackrel{?}{=} 3^3 + 17$$

$$44 \stackrel{?}{=} 27 + 17$$

The two sides are equal, so
 $(3, -\sqrt{44})$ is on the graph of
 $y^2 = x^3 + 17$

3. Are there any points on the graph of $y^2 = x^3 + 17$ with $x = -3$? If so, give me an example of a point with $x = -3$. If not, why not?

Suppose $x = -3$. Then $y^2 = (-3)^3 + 17 = -27 + 17 = -10$
But $y^2 \geq 0$ and $-10 < 0$, so $y^2 \neq -10$,
so there are no points on the graph of
 $y^2 = x^3 + 17$ with $x = -3$