8.2 Graphs of Equations

DEFINITION: The set of all solution points of an equation is the graph of the equation.

METHOD I: Use Point Plotting

Ex. ① Graph the equation $y = 2x + 1$ by completing the table and plotting the points by hand.

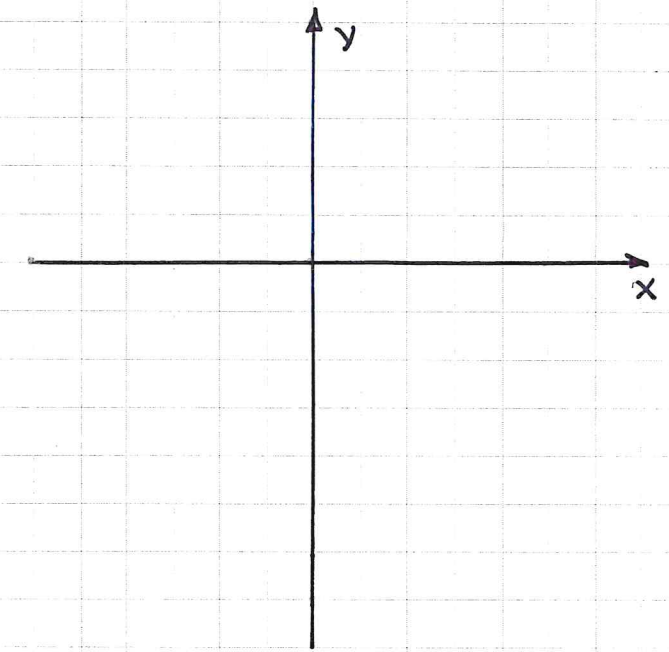
x	y
-2	
0	
3	

Note: The equation is linear.

Its graph is a straight line.

Ex. ② Use point plotting to sketch the graph of the equation $y = \frac{-1}{2}x^2 + 2$

x	y
-4	
-2	
0	
2	
4	



Note: The equation is quadratic.

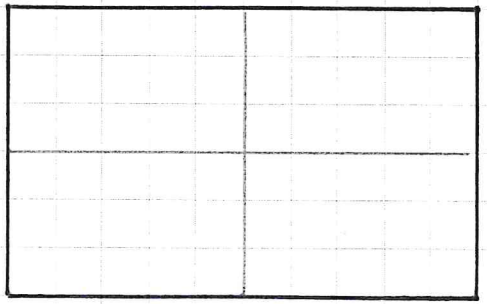
It's graph is a parabola.

METHOD 2: Use a Graphing Calculator

Demonstration: Graph the equation

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

in the Standard Viewing Window. $[-10, 10] \times [-10, 10]$

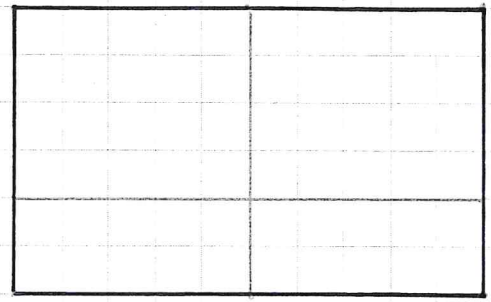


Ex. ③ Sketch the graph of

$$y = x^3 - 4x^2 - 2x + 10$$

in the window

$$[-5, 5] \times [-10, 15]$$



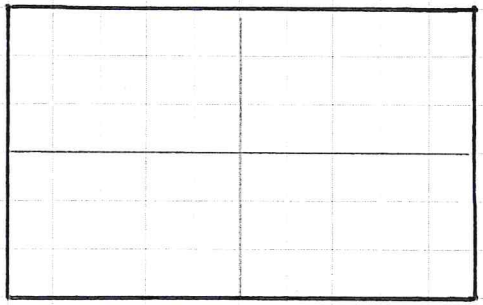
y-intercept $(x = 0)$:

x-intercepts $(y = 0)$:

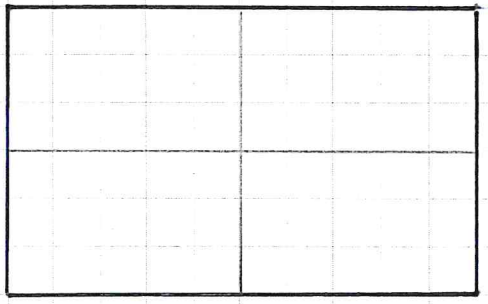
Ex. ④ Use a Graphing Calculator to sketch the graph of the circle

$$x^2 + y^2 = 25$$

Solve for y:



Standard Window



Zoom Square