

#25 $y = 9 - x^2$

Solution: recall $y = ax^2 + bx + c$

1) $a = -1$, $b = 0$, $c = 9$

$a < 0$ hence \curvearrowright

2) vertex: $x = -\frac{b}{2a} = -\frac{0}{2 \cdot (-1)} = 0$

then

$$y = 9 - 0^2 = 9$$

$(0, 9)$

← vertex

← y-intercept

3) x-intercepts (if any): $y = 0$

$$0 = 9 - x^2$$

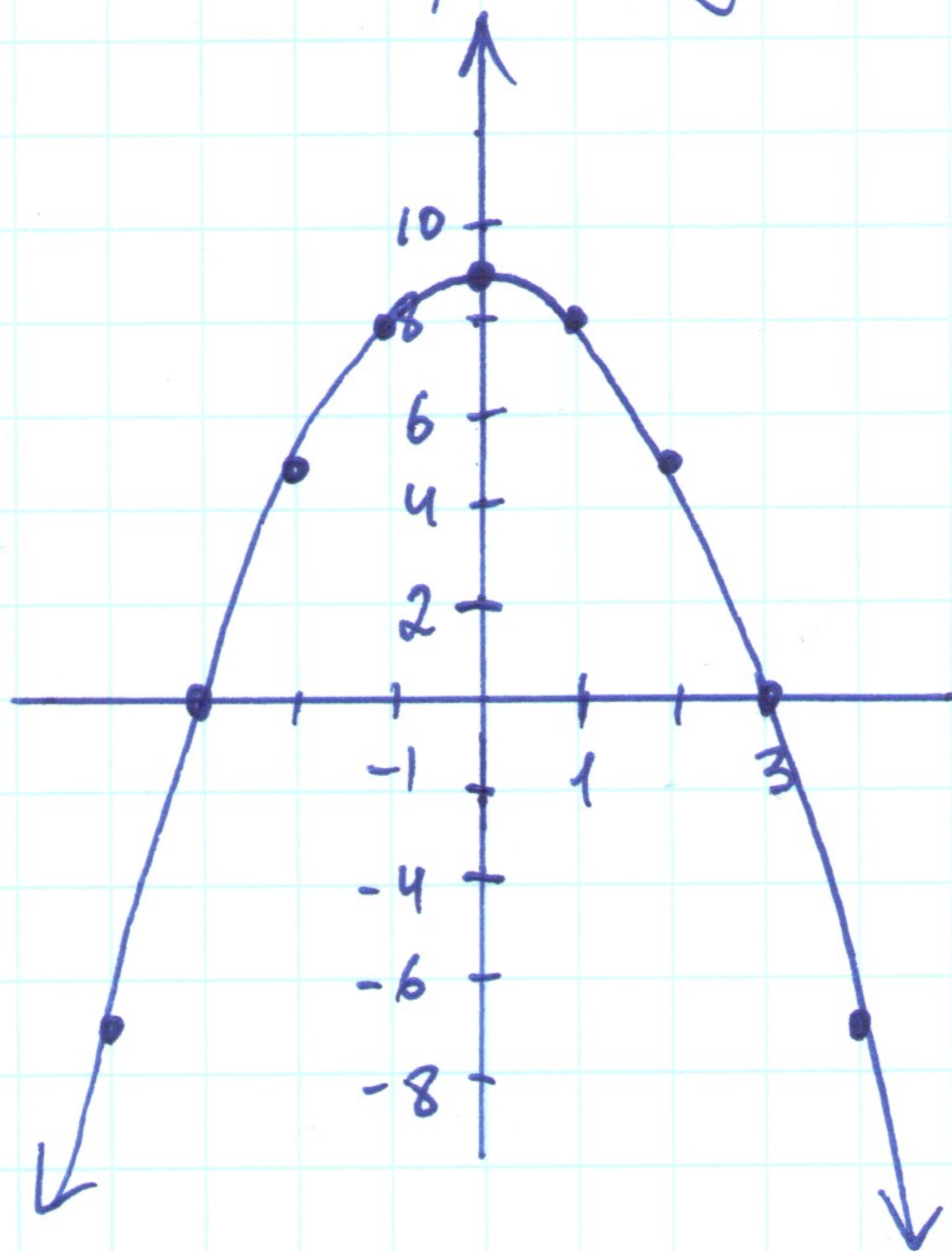
let's solve for x :

$$x^2 = 9$$

hence $x = \pm 3$

$(3, 0), (-3, 0)$

start plotting points:



4)

| x | y |
|----|----|
| 1 | 8 |
| -1 | 8 |
| 2 | 5 |
| -2 | 5 |
| 4 | -7 |
| -4 | -7 |

pick →

1

8

$$y = 9 - 1 = 8$$

-1

8

2

5

$$y = 9 - 4 = 5$$

-2

5

4

-7

$$y = 9 - 16 = -7$$

-4

-7