

- $x^2 + 6x - 8$

$$a = 1 \quad b = 6 \quad c = -8$$

$$x^2 + 6x - 8$$

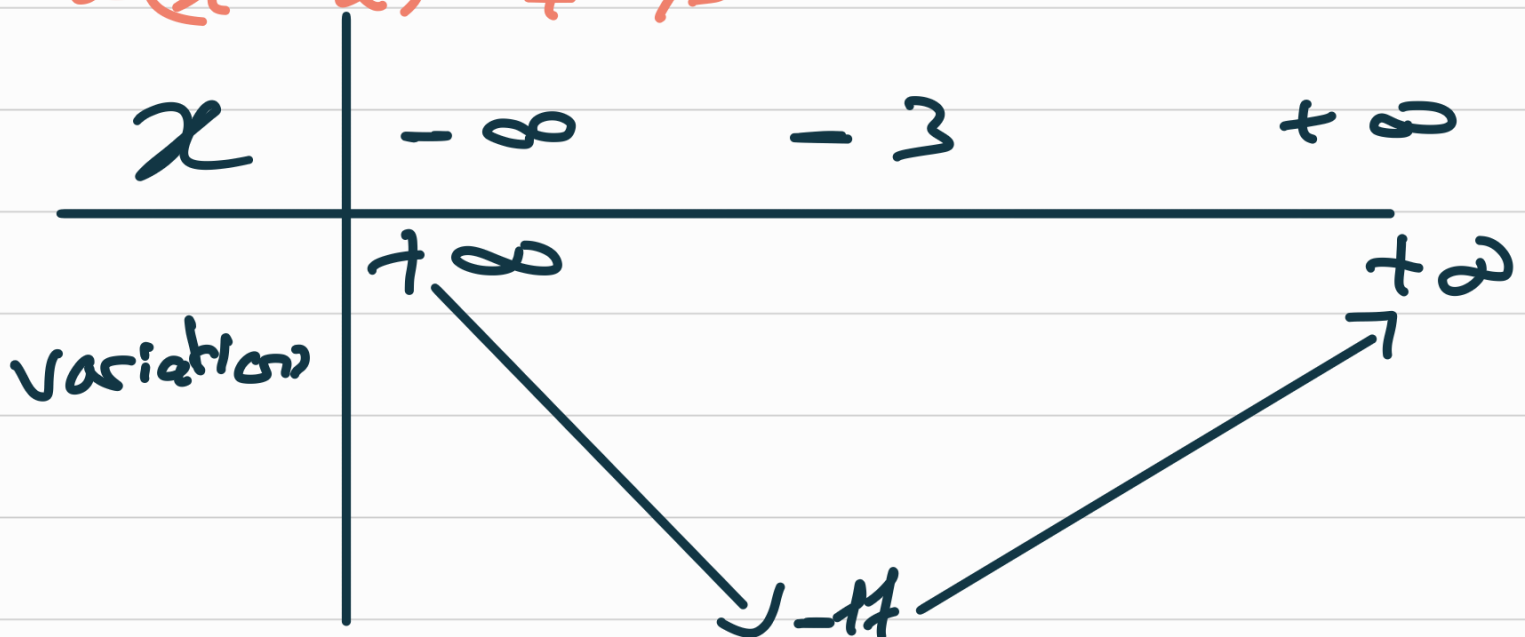
$$= x^2 + 2 \times x \times 3 - 8$$

$$= (x + 3)^2 - 3^2 - 8$$

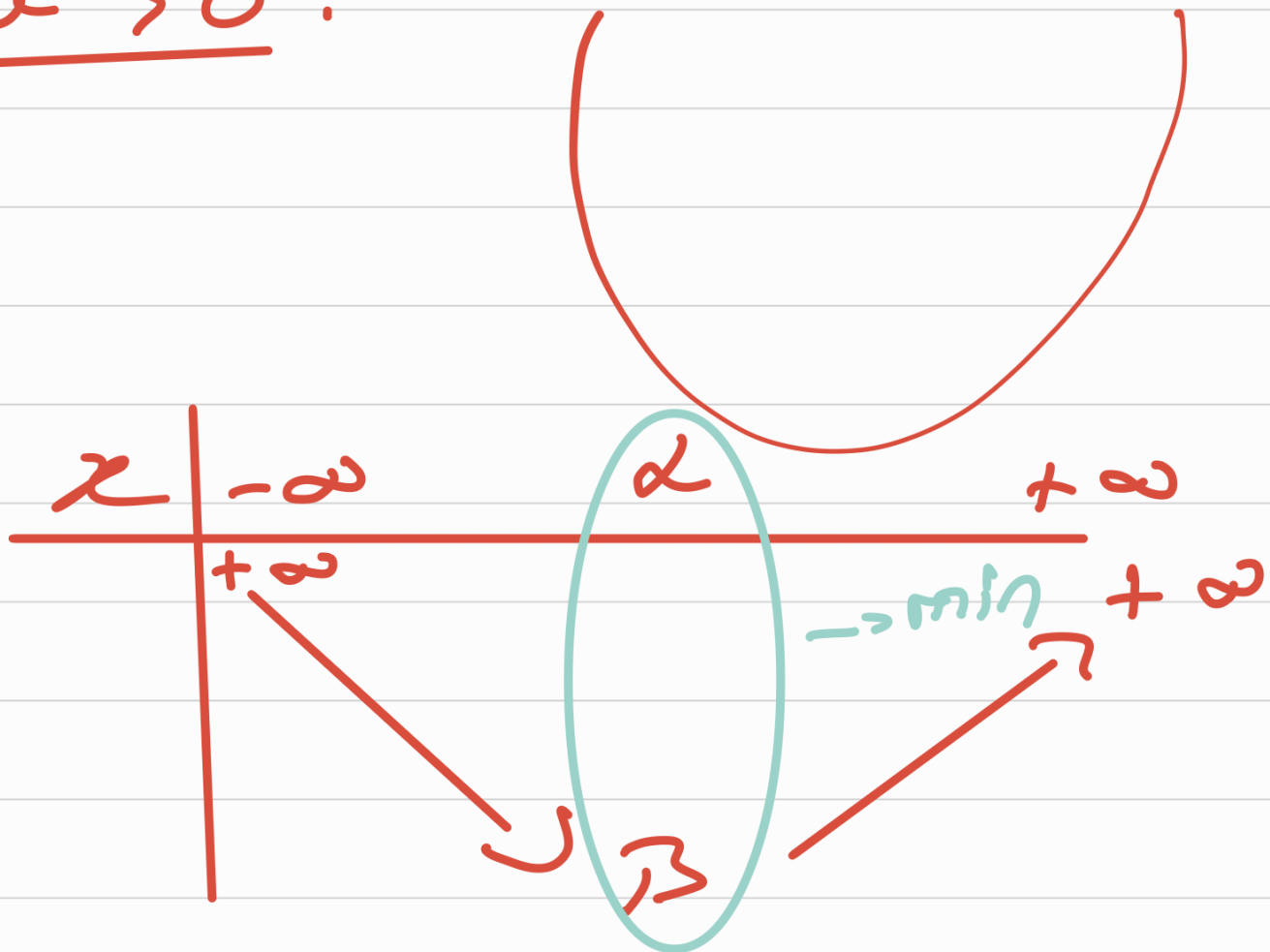
$$= (x + 3)^2 - 9 - 8$$

$$= (x + 3)^2 - 17$$

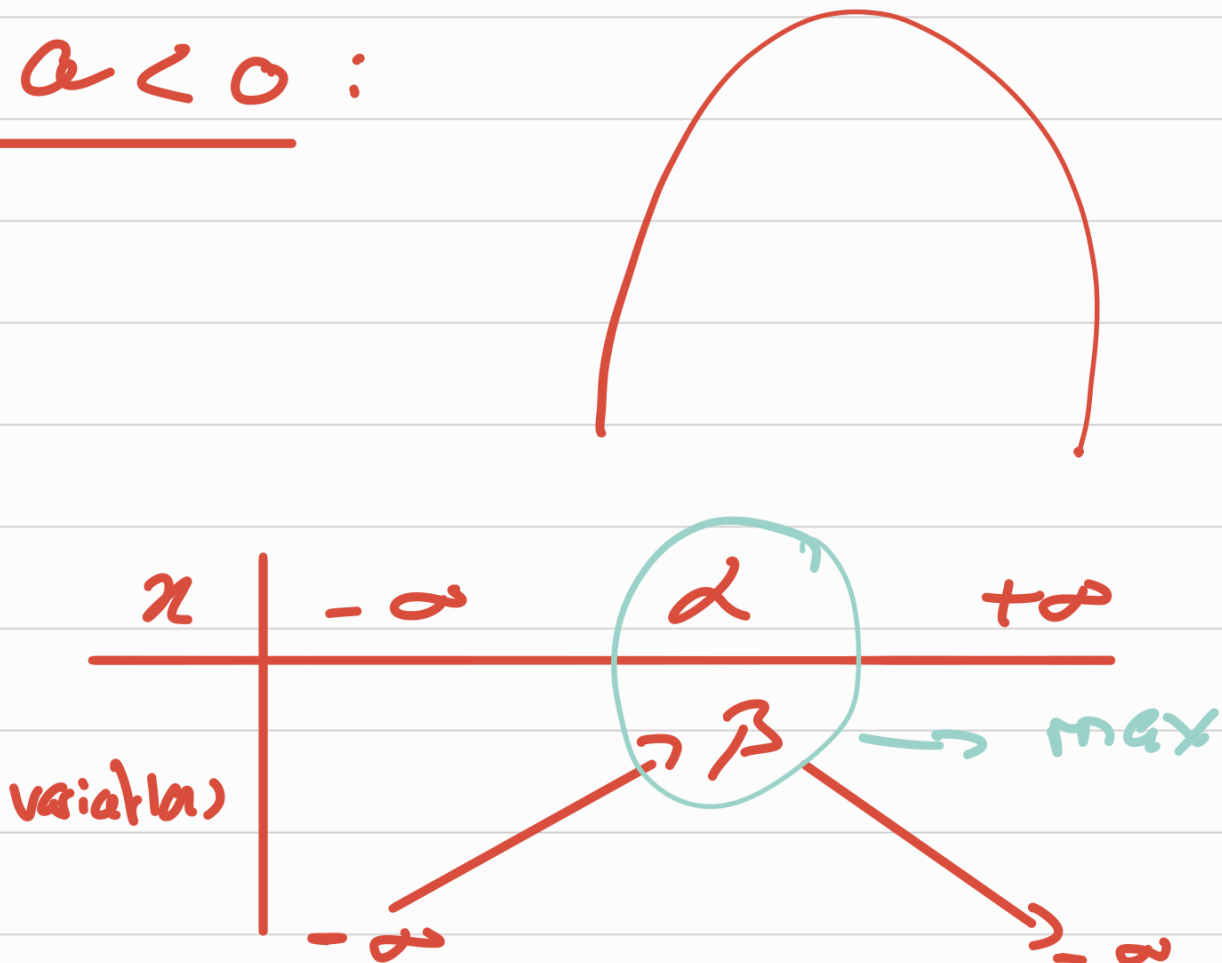
$$a(x - \alpha)^2 + \beta$$



$a > 0$:



$a < 0$:



$$\bullet \quad 2x^2 + 6x + 4$$

$$a = 2 \quad b = 6 \quad c = 4$$

$$2x^2 + 6x + 4$$

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

$$= 2\left(x^2 + 2x \times \frac{3}{2}\right) + 4$$

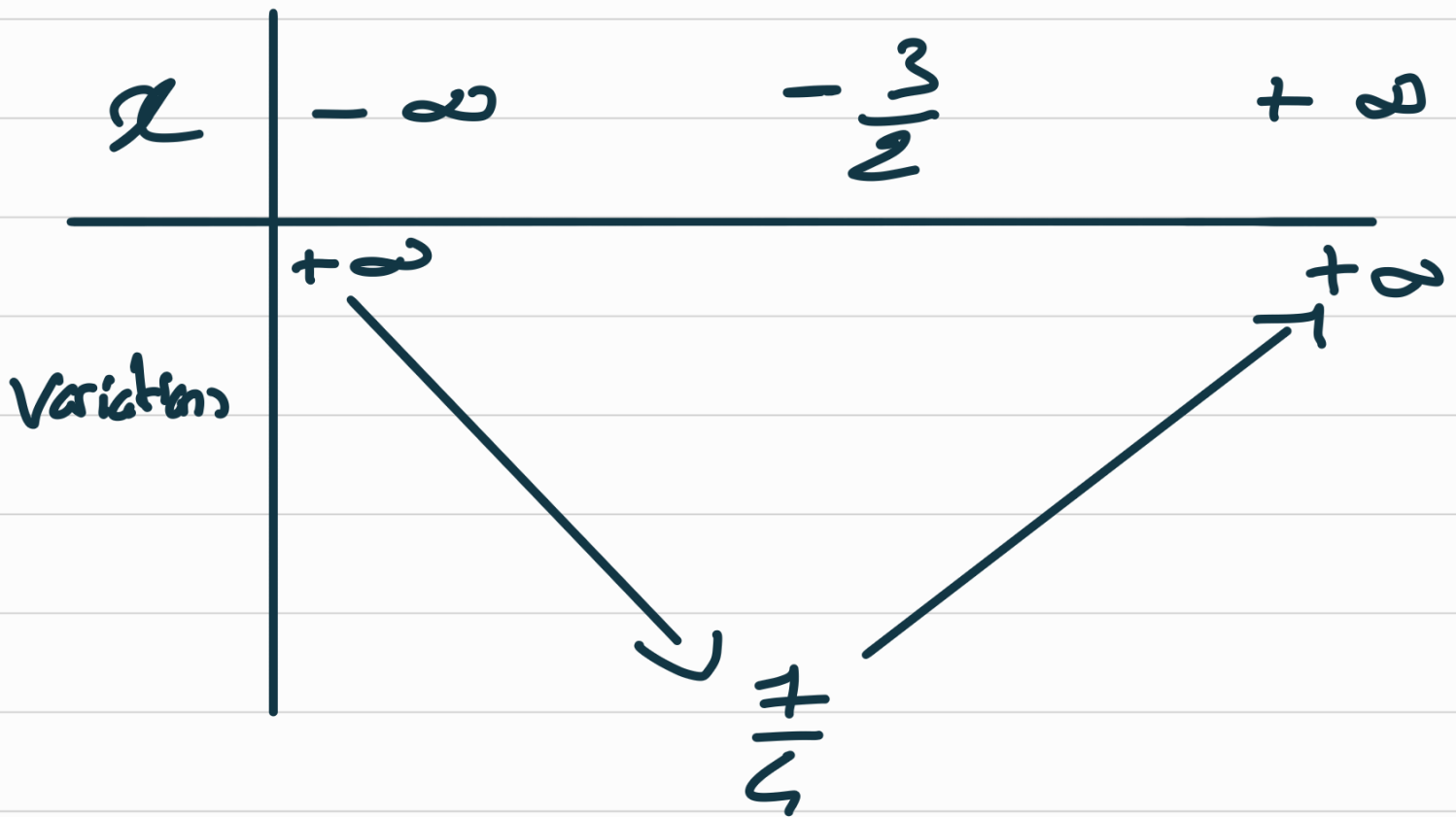
$$= 2\left[\left(x + \frac{3}{2}\right)^2 - \left(\frac{3}{2}\right)^2\right] + 4$$

$$= 2\left[\left(x + \frac{3}{2}\right)^2 - \frac{9}{4}\right] + 4$$

$$= 2\left(x + \frac{3}{2}\right)^2 - 2 \times \frac{9}{4} + \frac{4 \times 4}{1 \times 4}$$

$$= 2\left(x + \frac{3}{2}\right)^2 - \frac{18}{4} + \frac{16}{4}$$

$$= 2 \left(x + \frac{3}{2} \right)^2 \left(-\frac{2}{4} \right) = -\frac{1}{2}$$



$$\alpha = -\frac{b}{2a} \Rightarrow \alpha = -\frac{6}{2 \times 2} = -\frac{3}{2}$$

$$\beta = f(\alpha) \Rightarrow \beta = -\frac{1}{2}$$

$$\bullet -3x^2 + 12x + 12$$

$$a =$$

$$b =$$

$$c =$$