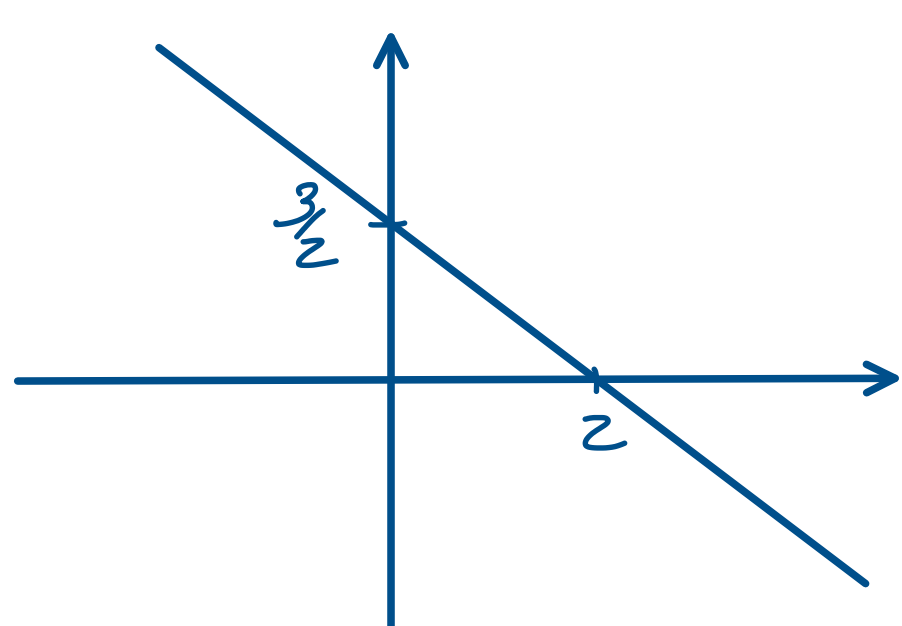


Questão 1



$$\begin{pmatrix} 0, \frac{3}{2} \end{pmatrix} \quad a = \frac{0 - \frac{3}{2}}{2 - 0} = -\frac{3}{4}$$

$$(2, 0)$$

$$-(3-k) = -\frac{3}{4} \rightarrow \text{retas paralelas tem o mesmo declive}$$

$$\Rightarrow -3+k = -\frac{3}{4}$$

$$\Rightarrow k = -\frac{3}{4} + 3$$

$$\Rightarrow k = \frac{9}{4}$$

Questão 2

$$\Delta = 0$$

$$(k-2)^2 - 4 \times 1 \times 9 = 0$$

$$\Rightarrow (k-2)^2 = 36$$

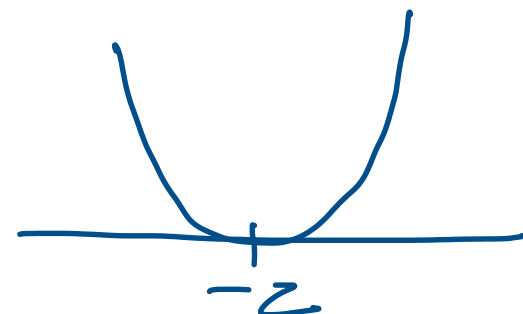
$$\Rightarrow k-2 = \pm \sqrt{36}$$

$$\Rightarrow k = -6 + 2 \vee k = 6 + 2$$

$$\Rightarrow k = -4 \vee k = 8$$

Questão 3

$$a > 0$$



$$D' = [0, +\infty[$$

Questão 4

$$a) h(x) = 0$$

$$\Rightarrow |x+2| - 2 = 0$$

$$\Rightarrow |x+2| = 2$$

$$\Rightarrow x+2 = 2 \vee x+2 = -2$$

$$\Rightarrow x = 0 \vee x = -4$$

$$S = \{-4, 0\}$$

$$b) B(-2, -2)$$

$$b = 0 - (-4) = 4$$

$$y = |y_B| = 2$$

$$A = \frac{b \times h}{2} = \frac{4 \times 2}{2} = 4 \text{ u.a.}$$

$$c) |x+2| = \begin{cases} x+2 & \text{se } x+2 \geq 0 \\ -x-2 & \text{se } x+2 < 0 \end{cases}$$

$$= \begin{cases} x+2 & \text{se } x \geq -2 \\ -x-2 & \text{se } x < -2 \end{cases}$$

$$h(x) = \begin{cases} x+2-2 & \text{se } x \geq -2 \\ -x-2-2 & \text{se } x < -2 \end{cases}$$

$$= \begin{cases} x & \text{se } x \geq -2 \\ -x-4 & \text{se } x < -2 \end{cases}$$

Questão 5

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

$$g(x) = -x$$

$$a) f(x) = g(x)$$

$$\Rightarrow x^2 + 3x = -x$$

$$\Rightarrow x^2 + 4x = 0$$

$$\Rightarrow x(x+4) = 0$$

$$\Rightarrow x = 0 \vee x+4 = 0$$

$$\Rightarrow x = 0 \vee x = -4$$

ponto O

ponto I

$$g(-4) = -(-4) = 4$$

$$I(-4, 4)$$

$$b) f(x) < -2$$

$$\Rightarrow x^2 + 3x < -2$$

$$\Rightarrow x^2 + 3x + 2 < 0$$

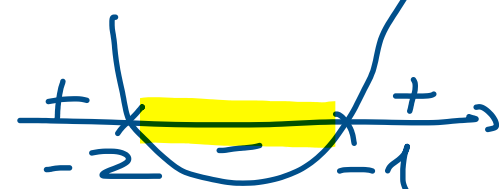
$$S =]-2, -1[$$

C. Aux:

$$x^2 + 3x + 2 = 0$$

$$\Rightarrow x = \frac{-3 \pm \sqrt{3^2 - 4 \times 1 \times 2}}{2 \times 1}$$

$$\Rightarrow x = -1 \vee x = -2$$



$$\begin{aligned} c) A &= \frac{\overline{AB} \times \overline{OC}}{2} \\ &= \frac{(-x^2 - 4x)(-x)}{2} \\ &= \frac{x^3 + 4x^2}{2} \\ &= \frac{x^3}{2} + \frac{4x^2}{2} \\ &= \frac{x^3}{2} + 2x^2 \end{aligned}$$

$$\begin{aligned} A(x, -x) \\ B(x, x^2 + 3x) \\ C(x, 0) \end{aligned}$$

$$\begin{aligned} \overline{AB} &= -x - (x^2 + 3x) \\ &= -x - x^2 - 3x \\ &= -x^2 - 4x \end{aligned}$$

$$\overline{OC} = |x_c| = -x$$

$$\Rightarrow h(x) = \frac{x^3}{2} + 2x^2$$