$$f(x) = x^2 - 3 = (x+\sqrt{3})(x-\sqrt{3})$$

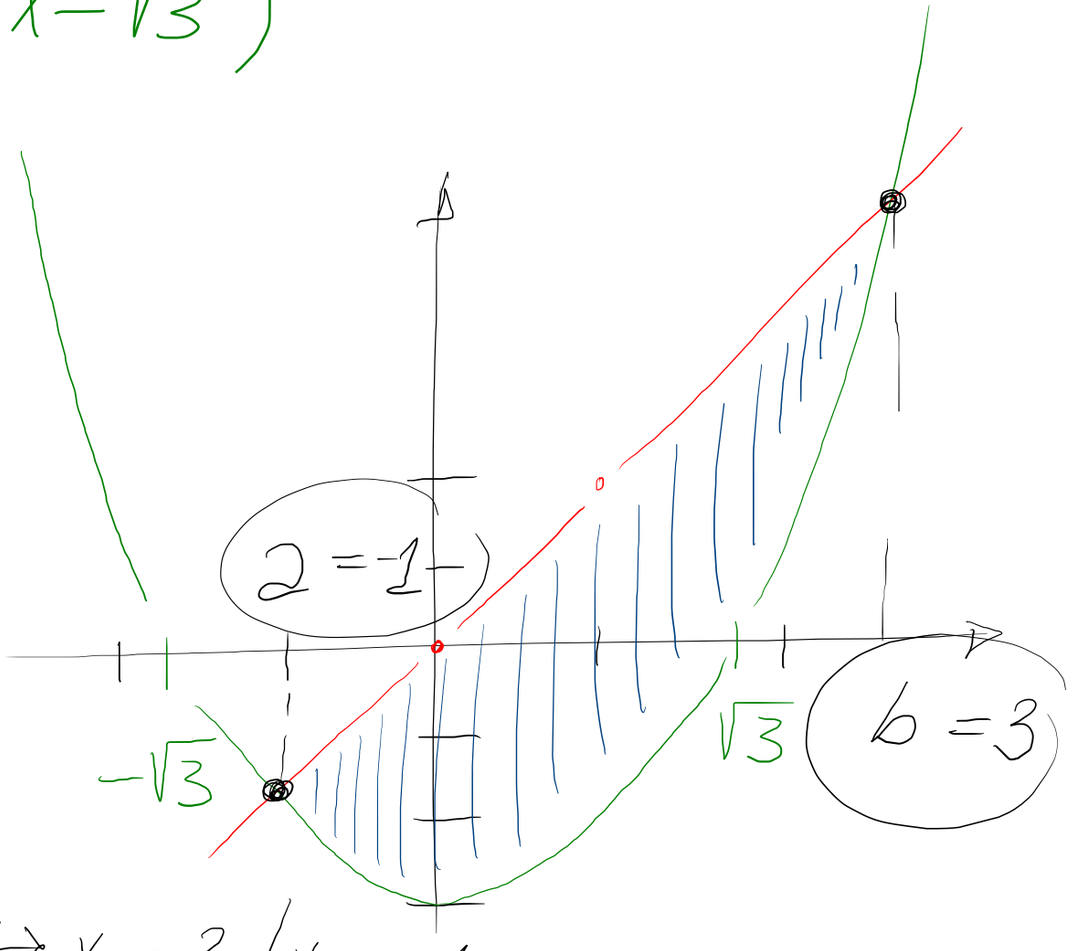
$$g(x) = 2x$$

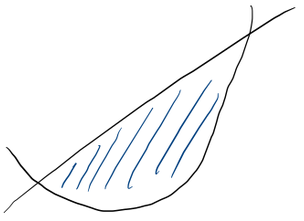
$$f(x) = g(x) \Leftrightarrow x^2 - 3 = 2x$$

$$\Leftrightarrow x^2 - 2x - 3 = 0$$

$$\Leftrightarrow (x-3)(x+1) = 0$$

$$\Leftrightarrow x = 3 \,/\, x = -1$$



Pour calculer l'aire  :

$$\left| \int_{-1}^{3} (f(x) - g(x))\, dx \right| = A$$

$$f(x) - g(x) = x^2 - 2x - 3$$

$$\int (f(x) - g(x))\,dx = \int (x^2 - 2x - 3)\,dx$$

$$= \frac{1}{3}x^3 - x^2 - 3x + C$$

$$\int_{-1}^{3} (f(x) - g(x))\,dx = \frac{1}{3}x^3 - x^2 - 3x \Big|_{-1}^{3}$$

$$= \left(\frac{27}{3} - 9 - 9\right) - \left(\frac{1}{3}(-1)^3 - (-1)^2 - 3(-1)\right)$$

$$= 9 - 9 - 9 - \left(-\frac{1}{3} - 1 + 3\right)$$

$$= -9 - \left(2 - \frac{1}{3}\right) = -9 - \frac{5}{3} = -\frac{32}{3}$$

$$\Rightarrow A = \left|-\frac{32}{3}\right| = \frac{32}{3}$$