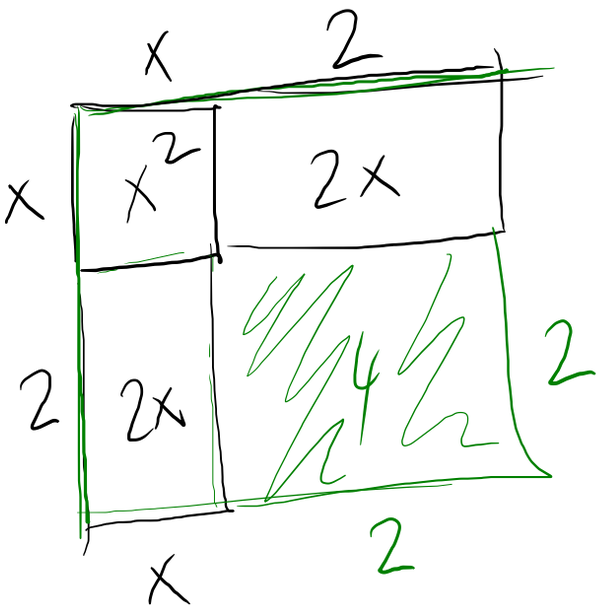
Equation du 2de degré

$$x^2 + 4x = 77$$

compléter le carré →

$$x^2 + 4x + 4 = 77 + 4$$

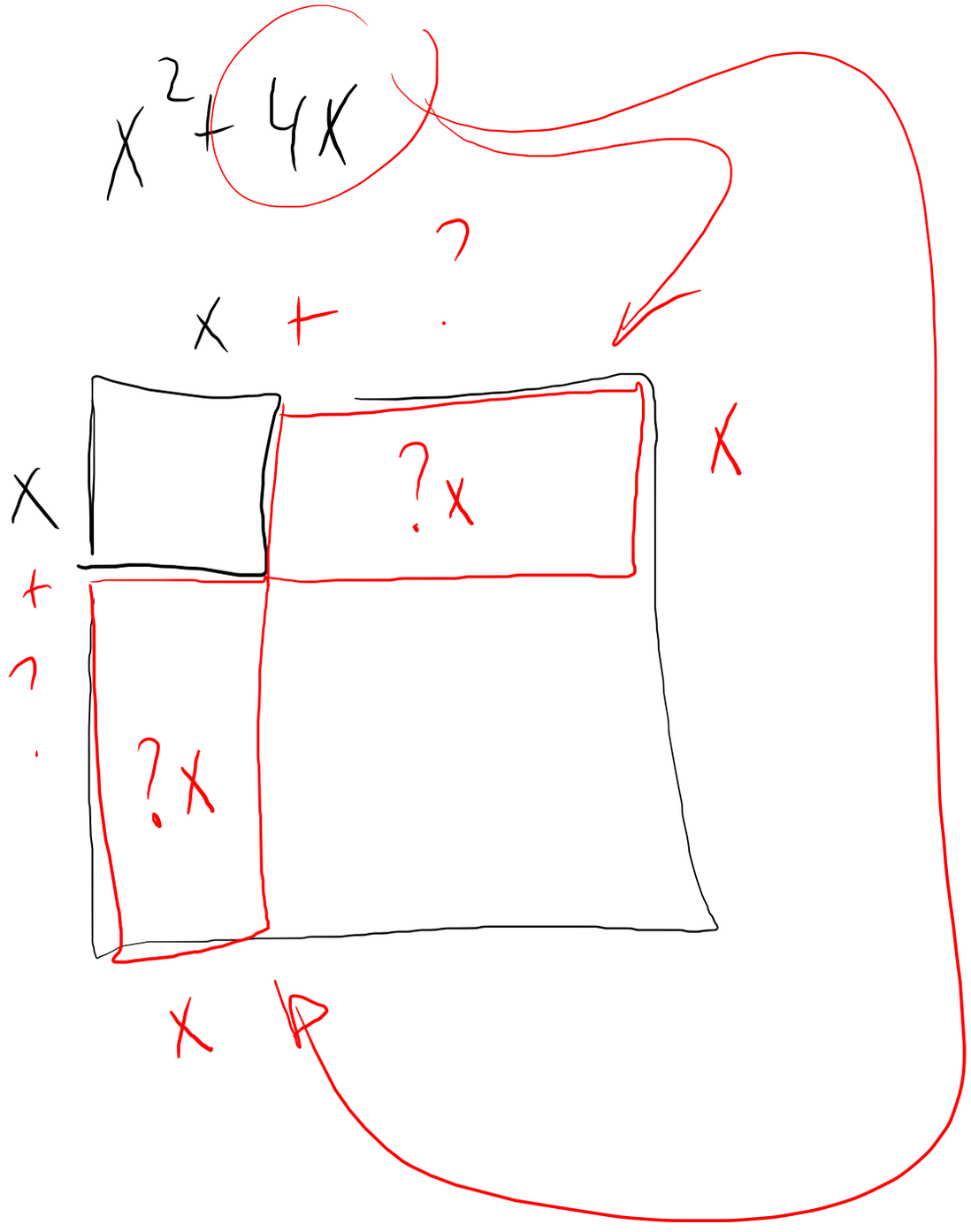


$$(x+2)^2 = 81$$

$$x+2 = 9 \qquad x+2 = -9$$

$$x = 7$$

$$x = -11$$



$?x + ?x = 4x$

$? = 2$

$$x^2+2px-q=0 \qquad \Delta = 4p^2-4\cdot 1\cdot(-q) = 4p^2+4q$$

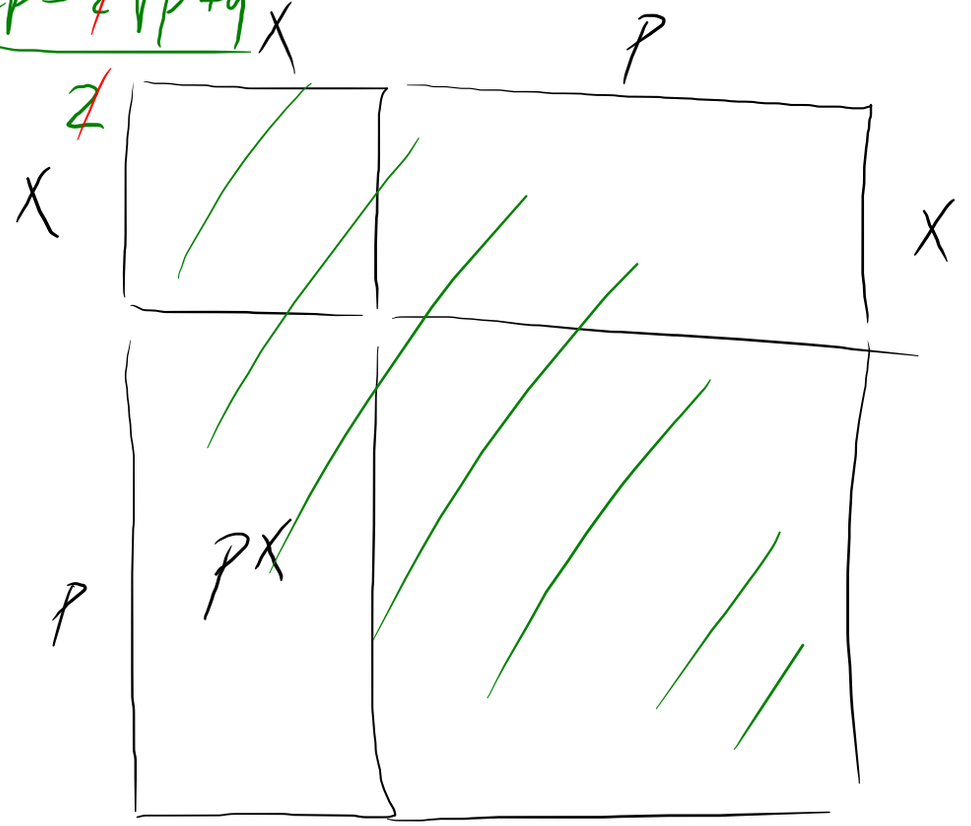
$$x = \frac{-2p\pm\sqrt{4p^2+4q}}{2} = \frac{-2p\pm\sqrt{4\cdot(p^2+q)}}{2} = \frac{-2p\pm 2\sqrt{p^2+q}}{2}$$

$$-p\pm\sqrt{p^2+q} = x$$

$$\boxed{x^2+2px = q}$$

$$2x^2+6x+c=0$$

$$x^2+2px+p^2 = q+p^2$$



$$(x+p)^2 = q+p^2$$

$$x+p = \pm\sqrt{q+p^2}$$

$$x = -p\pm\sqrt{q+p^2} = -p\pm\sqrt{p^2+q}$$

$$\left(\sqrt{q+p^2}\right)^2 = q+p^2$$

$$\left(-\sqrt{q+p^2}\right)^2 = q+p^2$$

$$3x^2 - 10x + 37 = 0$$

$$x^2 - \frac{10}{3}x + \frac{37}{3} = 0$$

$$x^2 - \frac{10}{3}x = -\frac{37}{3}$$

$2p$ $\qquad$ q

$$x^2 + 2px = q$$

$$p = -5/3 \qquad q = -37/3$$

$2x^3 - x^2 + 5x - 1$ $\quad$ $x - 3$

$2x^3 - x^2 + 5x - 1 \;\big|\; x - 3$

$2x^3 - 6x^2 \;\big|\; 2x^2 + \dots$

R

$$R = 2\cdot(3)^3 - 3^2 + 5\cdot 3 - 1$$

$$= 54 - 9 + 15 - 1$$

$$= 59$$

$P(x) \;\big|\; x - 2$

R

$$P(x) = Q(x)\cdot(x-2) + R \qquad (\deg 1)$$

$$P(2) = Q(2)\cdot(2-2) + R \qquad \text{nombre}$$

$$P(2) = R$$