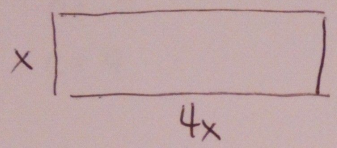
PRUEBA 2

(1) Una alfombra de $9\,m^2$ mide el cuádruple de largo que de ancho. Calcula sus dimensiones.



$x \cdot 4x = 9$

$4x^2 = 9$

$x^2 = \frac{9}{4}$; $x = \pm\frac{3}{2} = \pm 1'5$

Puesto que las longitudes son positivas, $x = 1'5\,m$.

Y las dimensiones de l'alfombra son $1'5 \times 6\,m$.

(2) Escribe en forma de polinomio

a) $(x+5)^2 = x^2 + 10x + 25$

b) $(x-1)^2 = x^2 - 2x + 1$

c) $(2x+3)^2 = 4x^2 + 12x + 9$

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

e) $\left(\sqrt{8}x + \sqrt{2}\right)^2 = 8x^2 + 2\cdot\sqrt{8}\times\sqrt{2} + 2 = 8x^2 + 8x + 2$

(3) Escribe como binomio al cuadrado

a) $x^2 - 6x + 9 = (x-3)^2$

b) $4x^2 + 20x + 25 = (2x+5)^2$

c) $9 + 4x^2 + 36x = (2x+9)^2 - 72$

(4) Resuelve sin fórmula

a) $3x^2 - 12 = 0$

$3x^2 = 12$

$x^2 = 4$; $\boxed{x = \pm 2}$

b) $3x^2 - 12x = 0$

$x(3x - 12) = 0$

O bien $\boxed{x = 0}$

o bien $3x - 12 = 0$

$3x = 12$

$\boxed{x = 4}$

c) $5x^2 + 12x + 4 = 0$

$\times 5$

$25x^2 + 60x + 20 = 0$

$(5x + 6)^2 = 25x^2 + 60x + 36$

$25x^2 + 60x + 36 = 16$

$(5x + 6)^2 = 16$

$5x + 6 = \pm 4$

$5x + 6 = 4$; $5x = -2$; $\boxed{x = -\frac{2}{5}}$

$5x + 6 = -4$; $5x = -10$; $\boxed{x = -2}$

(5) Resuelve

a) $x^2 - 5x + 4 = 0$

$a = 1$
$b = -5$
$c = 4$

$$x = \frac{5 \pm \sqrt{25 - 4 \cdot 1 \cdot 4}}{2 \cdot 1} = \frac{5 \pm \sqrt{9}}{2} = \frac{5 \pm 3}{2}$$

$$x = \frac{8}{2} = 4$$

$$x = \frac{2}{2} = 1$$

b) $x^2 + 4x + 5 = 0$

$a = 1$
$b = 4$
$c = 5$

$$x = \frac{-4 \pm \sqrt{16 - 4 \cdot 1 \cdot 5}}{2 \cdot 1} = \frac{-4 \pm \sqrt{-4}}{2} = \frac{-4 \pm \sqrt{4}\sqrt{-1}}{2} =$$

$$= \frac{-4 \pm 2i}{2} = -2 \pm i \notin \mathbb{R}$$

c) $2x^2 + 12x + 10 = 0$

$a = 2$
$b = 12$
$c = 10$

$$x = \frac{-12 \pm \sqrt{144 - 4 \cdot 2 \cdot 10}}{2 \cdot 2} = \frac{-12 \pm \sqrt{64}}{4} = \frac{-12 \pm 8}{4} =$$

$$x = \frac{-4}{4} = -1$$

$$x = \frac{-20}{4} = -5$$