EXERCICE 2A.1 - Retrouver l'expression dont on connaît le carré :

a. $4x^2 = (\ 2x\ )^2$ **b.** $9x^2 = (\ \ldots\ldots\ )^2$ **c.** $36x^2 = (\ \ldots\ldots\ )^2$ **d.** $25x^2 = (\ \ldots\ldots\ )^2$ **e.** $49x^2 = (\ \ldots\ldots\ )^2$

f. $81x^2 = (\ \ldots\ldots\ )^2$ **g.** $100t^2 = (\ \ldots\ldots\ )^2$ **h.** $400a^2 = (\ \ldots\ldots\ )^2$ **i.** $144b^2 = (\ \ldots\ldots\ )^2$ **j.** $16y^2 = (\ \ldots\ldots\ )^2$

EXERCICE 2A.2 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 + 2ab + b^2 = (a + b)^2}$

$Z = 25x^2 + 30x + 9$ **$Z = (5x)^2 + 2 \times 5x \times 3 + 3^2$** **$Z = (5x + 3)^2$**	$A = x^2 + 10x + 25$	$B = x^2 + 6x + 9$
$C = 36 + 12x + x^2$	$D = 4x^2 + 12x + 9$	$E = 16x^2 + 40x + 25$

EXERCICE 2A.3 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 - 2ab + b^2 = (a - b)^2}$

$Z = 9x^2 - 30x + 25$ **$Z = (3x)^2 - 2 \times 3x \times 5 + 5^2$** **$Z = (3x - 5)^2$**	$A = x^2 - 2x + 1$	$B = 4x^2 - 20x + 25$
$C = 9 - 6x + x^2$	$D = 36x^2 - 12x + 1$	$E = 100 - 40x + 4x^2$

EXERCICE 2A.4 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 - b^2 = (a + b)(a - b)}$

$Z = x^2 - 81$ **$Z = x^2 - 9^2$** **$Z = (x + 9)(x - 9)$**	$A = x^2 - 4$	$B = 9 - x^2$

EXERCICE 2A.5 - Factoriser comme dans l'exemple :

$Z = 9x^2 - 30x + 20$ **$Z = 9x^2 - 30x + 25 - 25 + 20$** **$Z = (3x - 5)^2 - 25 + 20$** **$Z = (3x - 5)^2 - 5$** **$Z = (3x - 5)^2 - (\sqrt{5})^2$** **$Z = (3x - 5 + \sqrt{5})(3x - 5 - \sqrt{5})$**	$A = x^2 + 10x + 16$	$B = x^2 + 6x + 5$
$C = 20 + 12x + x^2$	$D = 4x^2 + 12x + 5$	$E = 16x^2 + 40x + 20$

CORRIGE – NOTRE DAME DE LA MERCI – *MONTPELLIER*

EXERCICE 2A.1 - Retrouver l'expression dont on connaît le carré :

a. $4x^2 = (\mathbf{2x})^2$ **b.** $9x^2 = (\mathbf{3x})^2$ **c.** $36x^2 = (\mathbf{6x})^2$ **d.** $25x^2 = (\mathbf{5x})^2$ **e.** $49x^2 = (\mathbf{7x})^2$

f. $81x^2 = (\mathbf{9x})^2$ **g.** $100t^2 = (\mathbf{10t})^2$ **h.** $400a^2 = (\mathbf{20a})^2$ **i.** $144b^2 = (\mathbf{12b})^2$ **j.** $16y^2 = (\mathbf{4y})^2$

EXERCICE 2A.2 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 + 2ab + b^2 = (a + b)^2}$

$\mathbf{Z = 25x^2 + 30x + 9}$ $\mathbf{Z = (5x)^2 + 2 \times 5x \times 3 + 3^2}$ $\mathbf{Z = (5x + 3)^2}$	$A = x^2 + 10x + 25$ $A = \mathbf{x^2 + 2 \times x \times 5 + 5^2}$ $A = \mathbf{(x + 5)^2}$	$B = x^2 + 6x + 9$ $B = \mathbf{x^2 + 2 \times x \times 3 + 3^2}$ $B = \mathbf{(x + 3)^2}$
$C = 36 + 12x + x^2$ $C = \mathbf{6^2 + 2 \times 6 \times x + x^2}$ $C = \mathbf{(6 + x)^2}$	$D = 4x^2 + 12x + 9$ $D = \mathbf{(2x)^2 + 2 \times 2x \times 3 + 3^2}$ $D = \mathbf{(2x + 3)^2}$	$E = 16x^2 + 40x + 25$ $B = \mathbf{(4x)^2 + 2 \times 4x \times 5 + 5^2}$ $B = \mathbf{(4x + 5)^2}$

EXERCICE 2A.3 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 - 2ab + b^2 = (a - b)^2}$

$\mathbf{Z = 9x^2 - 30x + 25}$ $\mathbf{Z = (3x)^2 - 2 \times 3x \times 5 + 5^2}$ $\mathbf{Z = (3x - 5)^2}$	$A = x^2 - 2x + 1$ $A = \mathbf{x^2 - 2 \times x \times 1 + 1^2}$ $A = \mathbf{(x - 1)^2}$	$B = 4x^2 - 20x + 25$ $B = \mathbf{(2x)^2 - 2 \times 2x \times 5 + 5^2}$ $B = \mathbf{(2x - 5)^2}$
$C = 9 - 6x + x^2$ $C = \mathbf{3^2 - 2 \times 3 \times x + x^2}$ $C = \mathbf{(3 - x)^2}$	$D = 36x^2 - 12x + 1$ $D = \mathbf{(6x)^2 - 2 \times 6x \times 1 + 1^2}$ $D = \mathbf{(6x - 1)^2}$	$E = 100 - 40x + 4x^2$ $E = \mathbf{10^2 - 2 \times 10 \times 2x + (2x)^2}$ $E = \mathbf{(10 - 2x)^2}$

EXERCICE 2A.4 - Factoriser en utilisant l'identité remarquable : $\mathbf{a^2 - b^2 = (a + b)(a - b)}$

$\mathbf{Z = x^2 - 81}$ $\mathbf{Z = x^2 - 9^2}$ $\mathbf{Z = (x + 9)\,(x - 9)}$	$A = x^2 - 4$ $A = \mathbf{x^2 - 2^2}$ $A = \mathbf{(x + 2)\,(x - 2)}$	$B = 9 - x^2$ $B = \mathbf{3^2 - x^2}$ $B = \mathbf{(3 + x)\,(3 - x)}$

EXERCICE 2A.5 - Factoriser comme dans l'exemple :

$\mathbf{Z = 9x^2 - 30x + 20}$ $\mathbf{Z = 9x^2 - 30x + 25 - 25 + 20}$ $\mathbf{Z = (3x - 5)^2 - 25 + 20}$ $\mathbf{Z = (3x - 5)^2 - 5}$ $\mathbf{Z = (3x - 5)^2 - (\sqrt{5})^2}$ $\mathbf{Z = (3x - 5 + \sqrt{5})(3x - 5 - \sqrt{5})}$	$A = x^2 + 10x + 16$ $A = x^2 + 10x \mathbf{+ 25 - 25} + 16$ $A = (x + 5)^2 - 25 + 16$ $A = (x + 5)^2 - 9$ $A = (x + 5)^2 - 3^2$ $A = (x + 5 + 3)\,(x + 5 - 3)$ $A = (x + 8)\,(x + 2)$	$B = x^2 + 6x + 5$ $B = x^2 + 6x \mathbf{+ 9 - 9} + 5$ $B = (x + 3)^2 - 9 + 5$ $B = (x + 3)^2 - 4$ $B = (x + 3)^2 - 2^2$ $B = (x + 3 + 2)\,(x + 3 - 2)$ $B = (x + 5)\,(x + 1)$
$C = 20 + 12x + x^2$ $C = x^2 + 12x \mathbf{+ 36 - 36} + 20$ $C = (x + 6)^2 - 36 + 20$ $C = (x + 6)^2 - 16$ $C = (x + 6)^2 - 4^2$ $C = (x + 6 + 4)\,(x + 6 - 4)$ $C = (x + 10)\,(x + 2)$	$D = 4x^2 + 12x + 5$ $D = (2x)^2 + 2 \times 2x \times 3 + 5$ $D = 4x^2 + 12x \mathbf{+ 9 - 9} + 5$ $D = (2x + 3)^2 - 9 + 5$ $D = (2x + 3)^2 - 4$ $D = (2x + 3)^2 - 2^2$ $D = (2x + 3 + 2)\,(2x + 3 - 2)$ $D = (2x + 5)\,(2x + 1)$	$E = 16x^2 + 40x + 20$ $E = (4x)^2 + 2 \times 4x \times 5 + 20$ $E = 4x^2 + 20x \mathbf{+ 25 - 25} + 20$ $E = (4x + 5)^2 - 25 + 20$ $E = (4x + 5)^2 - 5$ $E = (4x + 5)^2 - \left(\sqrt{5}\right)^2$ $E = (4x + 5 + \sqrt{5})(4x + 5 - \sqrt{5})$