

EXERCICE 1B.1

Factoriser le polynôme, comme dans l'exemple :

$\begin{aligned} A(x) &= (x + 3)^2 - 2 \\ &= (x + 3)^2 - (\sqrt{2})^2 \\ &= (x + 3 + \sqrt{2})(x + 3 - \sqrt{2}) \end{aligned}$		$B(x) = (x - 5)^2 - 3$
$C(x) = (x + 5)^2 - 7$	$D(x) = (x - 3)^2 - 16$	$E(x) = (x - 7)^2 - 2$
$F(x) = (2x - 3)^2 - 11$	$G(x) = (3x + 5)^2 - 25$	$H(x) = (5x - 1)^2 - 4$

EXERCICE 1B.2

Ecrire sous forme canonique puis factoriser le polynôme, comme dans l'exemple :

$\begin{aligned} A(x) &= x^2 + 6x + 5 \\ &= x^2 + \underline{2 \times 3 \times x} + 5 \\ &= (x^2 + \underline{2 \times 3 \times x + 3^2}) - 3^2 + 5 \\ &= (x + 3)^2 - \underline{9} + 5 \\ &= (x + 3)^2 - 4 \\ &= (x + 3)^2 - 2^2 \\ &= (x + 3 + 2)(x + 3 - 2) \\ &= (x + 5)(x + 1) \end{aligned}$		$B(x) = x^2 - 12x + 35$
$C(x) = x^2 - 2x - 3$	$D(x) = x^2 + 6x + 8$	$E(x) = x^2 - 6x - 7$
$F(x) = x^2 - 14x + 32$	$G(x) = x^2 + x - 6$	$H(x) = 25x^2 - 10x - 3$

CORRIGE – NOTRE DAME DE LA MERCI - Montpellier**EXERCICE 1B.1 :** Factoriser le polynôme, comme dans l'exemple :

$\begin{aligned} A(x) &= (x+3)^2 - 2 \\ &= (x+3)^2 - (\sqrt{2})^2 \\ &= (x+3+\sqrt{2})(x+3-\sqrt{2}) \end{aligned}$		$\begin{aligned} B(x) &= (x-5)^2 - 3 \\ &= (x-5)^2 - (\sqrt{3})^2 \\ &= (x-5+\sqrt{3})(x-5-\sqrt{3}) \end{aligned}$
$\begin{aligned} C(x) &= (x+5)^2 - 7 \\ &= (x+5)^2 - (\sqrt{7})^2 \\ &= (x+5+\sqrt{7})(x+5-\sqrt{7}) \end{aligned}$	$\begin{aligned} D(x) &= (x-3)^2 - 16 \\ &= (x-3)^2 - 4^2 \\ &= (x-3+4)(x-3-4) \\ &= (x+1)(x-7) \end{aligned}$	$\begin{aligned} E(x) &= (x-7)^2 - 2 \\ &= (x-7)^2 - (\sqrt{2})^2 \\ &= (x-7+\sqrt{2})(x-7-\sqrt{2}) \end{aligned}$
$\begin{aligned} F(x) &= (2x-3)^2 - 11 \\ &= (x-7)^2 - (\sqrt{2})^2 \\ &= (x-7+\sqrt{2})(x-7-\sqrt{2}) \end{aligned}$	$\begin{aligned} G(x) &= (3x+5)^2 - 25 \\ &= (3x+5)^2 - 5^2 \\ &= (3x+5+5)(3x+5-5) \\ &= 3x(3x+10) \end{aligned}$	$\begin{aligned} H(x) &= (5x-1)^2 - 4 \\ &= (5x-1)^2 - 2^2 \\ &= (5x-1+2)(5x-1-2) \\ &= (5x+1)(5x-3) \end{aligned}$

EXERCICE 1B.2 : Ecrire sous forme canonique puis factoriser le polynôme, comme dans l'exemple :

$\begin{aligned} A(x) &= x^2 + 6x + 5 \\ &= x^2 + 2 \times 3 \times x + 5 \\ &= (x^2 + 2 \times 3 \times x + 3^2) - 3^2 + 5 \\ &= (x+3)^2 - 9 + 5 \\ &= (x+3)^2 - 4 \\ &= (x+3)^2 - 2^2 \\ &= (x+3+2)(x+3-2) \\ &= (x+5)(x+1) \end{aligned}$		$\begin{aligned} B(x) &= x^2 - 12x + 35 \\ &= x^2 - 2 \times 6 \times x + 35 \\ &= (x^2 - 2 \times 6 \times x + 6^2) - 6^2 + 35 \\ &= (x-6)^2 - 36 + 35 \\ &= (x-6)^2 - 1 = (x-6)^2 - 1^2 \\ &= (x-6+1)(x-6-1) \\ &= (x-5)(x-7) \end{aligned}$
$\begin{aligned} C(x) &= x^2 - 2x - 3 \\ &= x^2 - 2 \times 1 \times x - 3 \\ &= (x^2 - 2 \times 1 \times x + 1^2) - 1^2 - 3 \\ &= (x-1)^2 - 1 - 3 \\ &= (x-1)^2 - 4 = (x-1)^2 - 2^2 \\ &= (x-1+2)(x-1-2) \\ &= (x+1)(x-3) \end{aligned}$	$\begin{aligned} D(x) &= x^2 + 6x + 8 \\ &= x^2 + 2 \times 3 \times x + 8 \\ &= (x^2 + 2 \times 3 \times x + 3^2) - 3^2 + 8 \\ &= (x+3)^2 - 9 + 8 \\ &= (x+3)^2 - 1 = (x+3)^2 - 1^2 \\ &= (x+3+1)(x+3-1) \\ &= (x+4)(x+2) \end{aligned}$	$\begin{aligned} E(x) &= x^2 - 6x - 7 \\ &= x^2 - 2 \times 3 \times x - 7 \\ &= (x^2 - 2 \times 3 \times x + 3^2) - 3^2 - 7 \\ &= (x-3)^2 - 9 - 7 \\ &= (x-3)^2 - 16 = (x-3)^2 - 4^2 \\ &= (x-3+4)(x-3-4) \\ &= (x+1)(x-7) \end{aligned}$
$\begin{aligned} F(x) &= x^2 - 14x + 32 \\ &= x^2 - 2 \times 7 \times x + 32 \\ &= (x^2 - 2 \times 7 \times x + 7^2) - 7^2 + 32 \\ &= (x-7)^2 - 49 - 32 \\ &= (x-7)^2 - 81 = (x-7)^2 - 9^2 \\ &= (x-7+9)(x-7-9) \\ &= (x+2)(x-16) \end{aligned}$	$\begin{aligned} G(x) &= x^2 + x - 6 \\ &= x^2 + 2 \times 0,5 \times x - 6 \\ &= (x^2 + 2 \times 0,5 \times x + 0,5^2) - 0,5^2 - 6 \\ &= (x+0,5)^2 - 0,25 - 6 \\ &= (x+0,5)^2 - 6,25 \\ &= (x+0,5)^2 - 2,5^2 \\ &= (x+0,5+2,5)(x+0,5-2,5) \\ &= (x+3)(x-2) \end{aligned}$	$\begin{aligned} H(x) &= 25x^2 - 10x - 3 \\ &= (5x)^2 - 2 \times 1 \times 5x - 3 \\ &= ((5x)^2 - 2 \times 1 \times 5x + 1^2) - 1^2 - 3 \\ &= (5x-1)^2 - 1 - 3 \\ &= (5x-1)^2 - 4 = (5x-1)^2 - 2^2 \\ &= (5x-1+2)(5x-1-2) \\ &= (5x+1)(5x-3) \end{aligned}$