CORRIGE – NOTRE DAME DE LA MERCI - *Montpellier*

EXERCICE 3C.1

Retrouver parmi les expressions suivantes la fonction polynôme (sous forme canonique) qui correspond à chaque courbe.

$A(x) = 2(x - 2)^2 - 2$
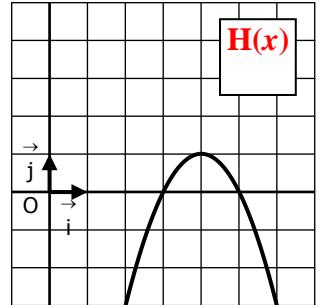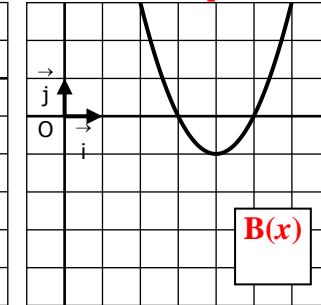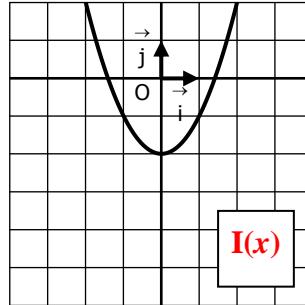
$B(x) = (x - 4)^2 - 1$
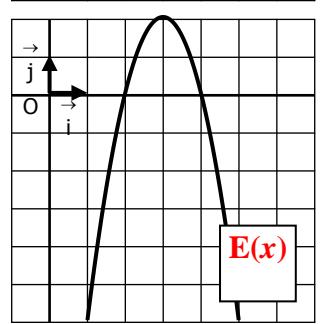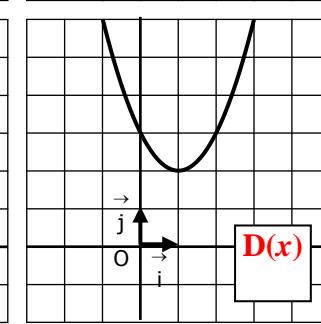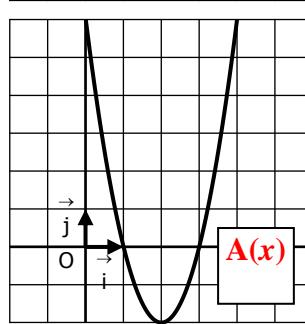
$C(x) = 2(x + 3)^2 - 2$
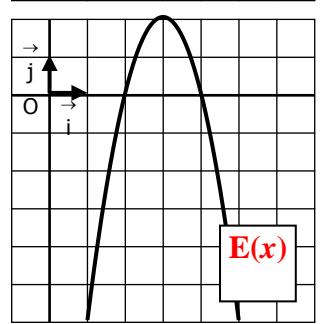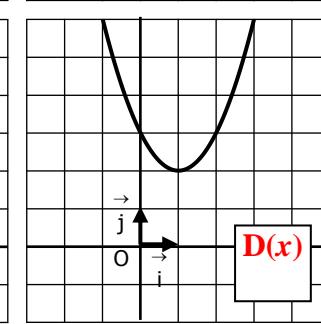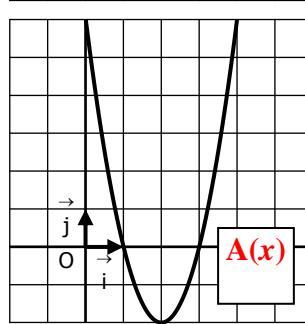
$D(x) = (x - 1)^2 + 2$
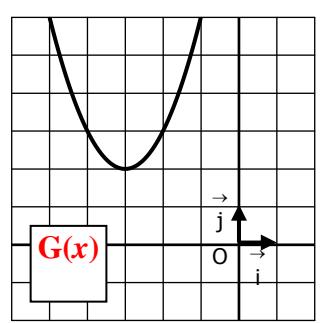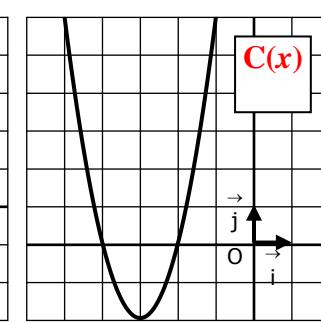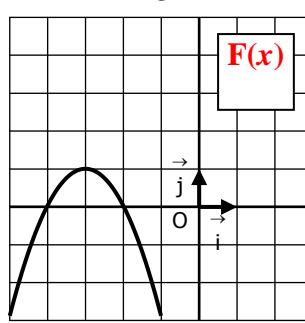
$E(x) = -2(x - 3)^2 + 2$

$F(x) = -(x + 3)^2 + 1$

$G(x) = (x + 3)^2 + 2$

$H(x) = -(x - 4)^2 + 1$

$I(x) = (x - 0)^2 - 2$

EXERCICE 3C.2 :   On donne quatre fonctions polynômes du second degré

$f_1(x) = x^2 - 10x + 24$ $f_2(x) = x^2 + 2x + 2$ $f_3(x) = 2x^2 - 20x + 48$ $f_4(x) = -x^2 + 6x - 9$

1. Mettre sous forme canonique les fonctions :

$f_1(x) = x^2 - 10x + 24$	$f_2(x) = x^2 + 2x + 2$	$f_3(x) = 2(x^2 - 10x + 24)$	$f_4(x) = -(x^2 - 6x + 9)$
$\alpha = \dfrac{-b}{2a} = \dfrac{10}{2 \times 1} = 5$	$\alpha = \dfrac{-b}{2a} = \dfrac{-2}{2 \times 1} = -1$	$\alpha = \dfrac{-b}{2a} = \dfrac{10}{2 \times 1} = 5$	$\alpha = \dfrac{-b}{2a} = \dfrac{-(-6)}{2 \times 1} = 3$
$\beta = \dfrac{-b^2 + 4ac}{4a}$	$\beta = \dfrac{-b^2 + 4ac}{4a}$	$\beta = \dfrac{-b^2 + 4ac}{4a}$	$\beta = \dfrac{-b^2 + 4ac}{4a}$
$= \dfrac{-(-10)^2 + 4 \times 1 \times 24}{4 \times 1}$	$= \dfrac{-2^2 + 4 \times 1 \times 2}{4 \times 1}$	$= \dfrac{-(-10)^2 + 4 \times 1 \times 24}{4 \times 1}$	$= \dfrac{-(-6)^2 + 4 \times 1 \times 9}{4 \times 1}$
$= \dfrac{-100 + 96}{4} = -1$	$= \dfrac{-4 + 8}{4} = 2$	$= \dfrac{-100 + 96}{4} = -1$	$= \dfrac{-36 + 36}{4} = 0$
$f_1(x) = (x - 5)^2 - 1$	$f_2(x) = (x + 1)^2 + 1$	$f_3(x) = 2\left[(x - 5)^2 - 1\right]$	$f_4(x) = -(x - 3)^2$
		$f_3(x) = 2(x - 5)^2 - 2$	

2. Retrouver la courbe représentative de chaque fonction.