

## Devoir n° 1 Du 1<sup>ère</sup> Semestre

### Correction Exercice 1 : 4 pts (Factoriser les expressions suivantes :)

1  $a^2xy + aby^2 + b^2xy + abx^2$

$$(a^2xy + abx^2) + (b^2xy + aby^2) = ax(ax + by) + by(ax + by) \\ = (ax + by)(ax + by)$$

2  $3a^2 + 3b^2 - 4c^2 - 6ab$

$$(3a^2 - 6ab + 3b^2) - 4c^2 = 3(a^2 - 2ab + b^2) - 4c^2 \\ = 3(a - b)^2 - (2 \cdot c)^2 \\ = [\sqrt{3}(a - b)]^2 - (2 \cdot c)^2 \\ = (\sqrt{3}(a - b) - 2c)(\sqrt{3}(a - b) + 2c)$$

3  $y^2 - x^2 + 2x - 1$

$$y^2 - (x^2 - 2x + 1) = y^2 - (x - 1)^2 \\ = (y - (x - 1))(y + (x - 1)) \\ = (y - x + 1)(y + x - 1)$$

4  $a^2b^2 - 1 + a^2 - b^2$

$$a^2b^2 - 1 + a^2 - b^2 = a^2b^2 - b^2 + a^2 - 1 \\ = b^2(a^2 - 1) + (a^2 - 1) \\ = (a^2 - 1)(b^2 + 1) \\ = (a - 1)(a + 1)(b^2 + 1)$$

5  $(ab - 1)^2 - (a - b)^2$

$$(ab - 1)^2 - (a - b)^2 = [ab - 1 - (a - b)][ab - 1 + (a - b)] \\ = (ab - 1 - a + b)(ab - 1 + a - b) \\ = [a(b - 1) + (b - 1)][a(b + 1) - (1 + b)] \\ = [(a + 1)(b - 1)][(a + 1)(b - 1)] \\ = (a - 1)(a + 1)(b - 1)(b + 1)$$

### Correction Exercice 2 : pts ()