
NOM
Prénom

Exercice 1 (4 points)

Calculer et simplifier :

1) $5\sqrt{3} - 7 + 4\sqrt{3} - 8 = 9\sqrt{3} - 15$

2) $5(2 - \sqrt{2}) + 7 - 6(\sqrt{2} + 4) = 10 - 5\sqrt{2} + 7 - 6\sqrt{2} - 24 = -7 - 11\sqrt{2}$

3) $(5 - \sqrt{5})(2\sqrt{5} + 3) = 10\sqrt{5} + 15 - 10 - 3\sqrt{5} = 5 + 7\sqrt{5}$

Exercice 2 (6 points)

Développer et réduire :

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

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

3) $(7 + 2x)(7 - 2x) = 49 - 4x^2$

4) $3(4x - 8)^2 - 2(x - 5)^2 = 48x^2 - 192x + 192 - 2x^2 + 20x - 50 =$
 $46x^2 - 172x + 142$

5) $(3x - \sqrt{2})^2 = 9x^2 - 6x\sqrt{2} + 2$

Exercice 3 (6 points)

Factoriser :

1) $(x + 1)^2 - 5(x + 1) = (x + 1)(x + 1 - 5) = (x + 1)(x - 4)$

2) $(3x - 5)^2 - (2x + 7)^2 = (3x - 5 - 2x - 7)(3x - 5 + 2x + 7) =$
 $(x - 12)(5x + 2)$

3) $x^2 + 6x + 9 - (x + 3)(2x - 8) = (x + 3)^2 - (x + 3)(2x - 8) =$
 $(x + 3)(x + 3 - 2x + 8) = (x + 3)(-x + 11)$

Exercice 4 (4 points)

1) Simplifier :

$$5 - \frac{2x - 5}{x + 8} = \frac{5(x + 8) - 2x + 5}{x + 8} = \frac{5x + 40 - 2x + 5}{x + 8} = \frac{3x + 45}{x + 8}$$

2) Résoudre :

$$\frac{3x - 8}{x + 8} = \frac{2}{3} \Leftrightarrow 3(3x - 8) = 2(x + 8) \Leftrightarrow 9x - 24 = 2x + 16 \Leftrightarrow 7x = 40 \Leftrightarrow x = \frac{40}{7}$$