

Consigne : factoriser les expressions suivantes, du type $a^2 - b^2$.

EXERCICE 1 : $(-12x+12)^2 - (6x+9)^2$

Réponse :

$$\begin{aligned} &= (-12x+12+6x+9)(-12x+12-(6x+9)) \\ &= (-6x+21)(-12x+12-6x-9) \\ &= (-6x+21)(-18x+3) \end{aligned}$$

EXERCICE 2 : $(14x-6)^2 - (-9x-9)^2$

Réponse :

$$\begin{aligned} &= (14x-6-9x-9)(14x-6-(-9x-9)) \\ &= (5x-15)(14x-6+9x+9) \\ &= (5x-15)(23x+3) \end{aligned}$$

EXERCICE 3 : $(-2x-1)^2 - (-15x-10)^2$

Réponse :

$$\begin{aligned} &= (-2x-1-15x-10)(-2x-1-(-15x-10)) \\ &= (-17x-11)(-2x-1+15x+10) \\ &= (-17x-11)(13x+9) \end{aligned}$$

EXERCICE 4 : $(-20x+19)^2 - (-3x)^2$

Réponse :

$$\begin{aligned} &= (-20x+19-3x)(-20x+19-(-3x)) \\ &= (-23x+19)(-20x+19+3x) \\ &= (-23x+19)(-17x+19) \end{aligned}$$

EXERCICE 5 : $(16x+15)^2 - (4x+3)^2$

Réponse :

$$\begin{aligned} &= (16x+15+4x+3)(16x+15-(4x+3)) \\ &= (20x+18)(16x+15-4x-3) \\ &= (20x+18)(12x+12) \end{aligned}$$

EXERCICE 6 : $(3x-6)^2 - (19x)^2$

Réponse :

$$\begin{aligned} &= (3x-6+19x)(3x-6-(19x)) \\ &= (22x-6)(3x-6-19x) \\ &= (22x-6)(-16x-6) \end{aligned}$$

EXERCICE 7 : $(-9x+1)^2 - (-12x+13)^2$

Réponse :

$$\begin{aligned} &= (-9x+1-12x+13)(-9x+1-(-12x+13)) \\ &= (-21x+14)(-9x+1+12x-13) \\ &= (-21x+14)(3x-12) \end{aligned}$$

EXERCICE 8 : $(-4x+7)^2 - (9x+11)^2$

Réponse :

$$\begin{aligned} &= (-4x+7+9x+11)(-4x+7-(9x+11)) \\ &= (5x+18)(-4x+7-9x-11) \\ &= (5x+18)(-13x-4) \end{aligned}$$

EXERCICE 9 : $(-3x-11)^2 - (14x+17)^2$

Réponse :

$$\begin{aligned} &= (-3x-11+14x+17)(-3x-11-(14x+17)) \\ &= (11x+6)(-3x-11-14x-17) \\ &= (11x+6)(-17x-28) \end{aligned}$$

EXERCICE 10 : $(4x-18)^2 - (13x-9)^2$

Réponse :

$$\begin{aligned} &= (4x-18+13x-9)(4x-18-(13x-9)) \\ &= (17x-27)(4x-18-13x+9) \\ &= (17x-27)(-9x-9) \end{aligned}$$

EXERCICE 11 : $(-5x)^2 - (-12x-3)^2$

Réponse :

$$\begin{aligned} &= (-5x-12x-3)(-5x-(-12x-3)) \\ &= (-17x-3)(-5x+12x+3) \\ &= (-17x-3)(7x+3) \end{aligned}$$

EXERCICE 12 : $(-10x+20)^2 - (-17x+13)^2$

Réponse :

$$\begin{aligned} &= (-10x+20-17x+13)(-10x+20-(-17x+13)) \\ &= (-27x+33)(-10x+20+17x-13) \\ &= (-27x+33)(7x+7) \end{aligned}$$

EXERCICE 13 : $(19x+17)^2 - (-16x-10)^2$

Réponse :

$$\begin{aligned} &= (19x+17-16x-10)(19x+17-(-16x-10)) \\ &= (3x+7)(19x+17+16x+10) \\ &= (3x+7)(35x+27) \end{aligned}$$

EXERCICE 14 : $(-17x-8)^2 - (3x-20)^2$

Réponse :

$$\begin{aligned} &= (-17x-8+3x-20)(-17x-8-(3x-20)) \\ &= (-14x-28)(-17x-8-3x+20) \\ &= (-14x-28)(-20x+12) \end{aligned}$$

EXERCICE 15 : $(6x-3)^2 - (2x-6)^2$

Réponse :

$$\begin{aligned} &= (6x-3+2x-6)(6x-3-(2x-6)) \\ &= (8x-9)(6x-3-2x+6) \\ &= (8x-9)(4x+3) \end{aligned}$$

EXERCICE 16 : $(2x+18)^2 - (16x-7)^2$

Réponse :

$$\begin{aligned} &= (2x+18+16x-7)(2x+18-(16x-7)) \\ &= (18x+11)(2x+18-16x+7) \\ &= (18x+11)(-14x+25) \end{aligned}$$

EXERCICE 17 : $(4x-20)^2 - (-13x-6)^2$

Réponse :

$$\begin{aligned} &= (4x-20-13x-6)(4x-20-(-13x-6)) \\ &= (-9x-26)(4x-20+13x+6) \\ &= (-9x-26)(17x-14) \end{aligned}$$

EXERCICE 18 : $(-3x+11)^2 - (-4x-7)^2$

Réponse :

$$\begin{aligned} &= (-3x+11-4x-7)(-3x+11-(-4x-7)) \\ &= (-7x+4)(-3x+11+4x+7) \\ &= (-7x+4)(x+18) \end{aligned}$$

EXERCICE 19 : $1^2 - (12x+1)^2$

Réponse :

$$\begin{aligned} &= (1+12x+1)(1-(12x+1)) \\ &= (12x+2)(1-12x-1) \\ &= (12x+2)(-12x) \\ &= -12x(12x+2) \end{aligned}$$

EXERCICE 20 : $(7x+11)^2 - (7x+18)^2$

Réponse :

$$\begin{aligned} &= (7x+11+7x+18)(7x+11-(7x+18)) \\ &= (14x+29)(7x+11-7x-18) \\ &= (14x+29)(-7) \\ &= -7(14x+29) \end{aligned}$$

EXERCICE 21 : $(-4x+7)^2 - (20x+18)^2$

Réponse :

$$\begin{aligned} &= (-4x+7+20x+18)(-4x+7-(20x+18)) \\ &= (16x+25)(-4x+7-20x-18) \\ &= (16x+25)(-24x-11) \end{aligned}$$

EXERCICE 22 : $(20x-18)^2 - (19x+1)^2$

Réponse :

$$\begin{aligned} &= (20x-18+19x+1)(20x-18-(19x+1)) \\ &= (39x-17)(20x-18-19x-1) \\ &= (39x-17)(x-19) \end{aligned}$$

EXERCICE 23 : $(16x+11)^2 - (19x-8)^2$

Réponse :

$$\begin{aligned} &= (16x+11+19x-8)(16x+11-(19x-8)) \\ &= (35x+3)(16x+11-19x+8) \\ &= (35x+3)(-3x+19) \end{aligned}$$

EXERCICE 24 : $(14x+20)^2 - (-6x+7)^2$

Réponse :

$$\begin{aligned} &= (14x+20-6x+7)(14x+20-(-6x+7)) \\ &= (8x+27)(14x+20+6x-7) \\ &= (8x+27)(20x+13) \end{aligned}$$

EXERCICE 25 : $(7x-17)^2 - (-3x+14)^2$

Réponse :

$$\begin{aligned} &= (7x-17-3x+14)(7x-17-(-3x+14)) \\ &= (4x-3)(7x-17+3x-14) \\ &= (4x-3)(10x-31) \end{aligned}$$

EXERCICE 26 : $(5x-20)^2 - (7x+2)^2$

Réponse :

$$\begin{aligned} &= (5x-20+7x+2)(5x-20-(7x+2)) \\ &= (12x-18)(5x-20-7x-2) \\ &= (12x-18)(-2x-22) \end{aligned}$$

EXERCICE 27 : $(-10x-7)^2 - (-14x-17)^2$

Réponse :

$$\begin{aligned} &= (-10x-7-14x-17)(-10x-7-(-14x-17)) \\ &= (-24x-24)(-10x-7+14x+17) \\ &= (-24x-24)(4x+10) \end{aligned}$$

EXERCICE 28 : $(-4x+6)^2 - (-15x+14)^2$

Réponse :

$$\begin{aligned} &= (-4x+6-15x+14)(-4x+6-(-15x+14)) \\ &= (-19x+20)(-4x+6+15x-14) \\ &= (-19x+20)(11x-8) \end{aligned}$$

EXERCICE 29 : $(-16x+7)^2 - (-17x+2)^2$

Réponse :

$$\begin{aligned} &= (-16x+7-17x+2)(-16x+7-(-17x+2)) \\ &= (-33x+9)(-16x+7+17x-2) \\ &= (-33x+9)(x+5) \end{aligned}$$

EXERCICE 30 : $(3x-8)^2 - (-8x-8)^2$

Réponse :

$$\begin{aligned} &= (3x-8-8x-8)(3x-8-(-8x-8)) \\ &= (-5x-16)(3x-8+8x+8) \\ &= (-5x-16)(11x) \\ &= 11x(-5x-16) \end{aligned}$$