

التعميل باسعمال المتطابقة الهامة $A^2 - B^2$

قاعدة

$$A^2 - B^2 = (A + B)(A - B)$$

امثلة

$$36x^2 - 9 = (6x)^2 - 3^2 = (6x + 3)(6x - 3) = 3(2x + 1)3(2x - 1) = 9(2x + 1)(2x - 1)$$

$$\begin{aligned} (x+1)^2 - (3x+2)^2 &= [(x+1) + (3x+2)][(x+1) - (3x+2)] \\ &= (x+1+3x+2)(x+1-3x-2) \\ &= (4x+3)(-2x-1) \end{aligned}$$

$$\begin{aligned} (4-3x)^2 - (3x-5)^2 &= [(4-3x) + (3x-5)][(4-3x) - (3x-5)] \\ &= (4-3x+3x-5)(4-3x-3x+5) \\ &= -1(-6x+9) \\ &= 6x-9 \\ &= 3(2x-3) \end{aligned}$$

تمارين

1. $16x^2 - 25 =$
2. $81 - 49x^2 =$
3. $1 - x^2 =$
4. $(2x+3)^2 - (x+2)^2 =$
5. $(5x+4)^2 - (3x+6)^2 =$
6. $(10x+3)^2 - (4x-1)^2 =$
7. $(4x-6)^2 - (4-3x)^2 =$
8. $(5x+3)^2 - (13x+4)^2 =$
9. $(2-3x)^2 - (6-4x)^2 =$
10. $(12x-17)^2 - (12x+13)^2 =$

حلول

$$\begin{aligned} 1. \quad 16x^2 - 25 &= (4x)^2 - 5^2 \\ &= (4x+5)(4x-5) \end{aligned}$$

$$\begin{aligned} 2. \quad 81 - 49x^2 &= 9^2 - (7x)^2 \\ &= (9+7x)(9-7x) \end{aligned}$$

$$3. \quad 1 - x^2 = (1+x)(1-x)$$

$$\begin{aligned} 4. \quad (2x+3)^2 - (x+2)^2 &= [(2x+3) + (x+2)][(2x+3) - (x+2)] \\ &= (2x+3+x+2)(2x+3-x-2) \\ &= (3x+5)(x+1) \end{aligned}$$

$$\begin{aligned} 5. \quad (5x+4)^2 - (3x+6)^2 &= [(5x+4) + (3x+6)][(5x+4) - (3x+6)] \\ &= (5x+4+3x+6)(5x+4-3x-6) \\ &= (8x+10)(2x-2) \\ &= 4(4x+5)(x-1) \end{aligned}$$

$$\begin{aligned} 6. \quad (10x+3)^2 - (4x-1)^2 &= (10x+3+4x-1)(10x+3-4x+1) \\ &= (14x+2)(6x+4) \\ &= 4(7x+1)(3x+2) \end{aligned}$$

$$\begin{aligned} 7. \quad (4x-6)^2 - (4-3x)^2 &= (4x-6+4-3x)(4x-6-4+3x) \\ &= (x-2)(7x-10) \end{aligned}$$

$$\begin{aligned} 8. \quad (5x+3)^2 - (13x+4)^2 &= (5x+3+13x+4)(5x+3-13x-4) \\ &= (18x+7)(-8x-1) \end{aligned}$$

$$\begin{aligned} 9. \quad (2-3x)^2 - (6-4x)^2 &= (2-3x+6-4x)(2-3x-6+4x) \\ &= (8-7x)(x-4) \end{aligned}$$

$$\begin{aligned} 10. \quad (12x-17)^2 - (12x+13)^2 &= (12x-17+12x+13)(12x-17-12x-13) \\ &= (24x-4)(-30) \\ &= -120(6x-1) \end{aligned}$$