

Notre Dame de La Merci - Montpellier

De l'art de mettre $(x + 1)$ en facteur : du plus facile au plus sérieux

$3x + 3 = \dots\dots\dots$

$(x + 1)(x + 5) + 7(x + 1) = \dots\dots\dots$

$(x + 1)(3x + 4) + (x + 1)(x - 3) = \dots\dots\dots$

$(x + 1)(4x + 9) - 5(x + 1) = \dots\dots\dots$

$(x + 1)(8x - 3) + 4x + 4 = \dots\dots\dots$

$(x + 1)(9x - 5) - 7x - 7 = \dots\dots\dots$

$(x + 1)(2x + 4) - (x - 7)(x + 1) = \dots\dots\dots$

$2(x + 1)(x - 4) + 3(x + 1)(x + 8) = \dots\dots\dots$

$7(x + 1)(2x + 1) - 2(x + 1)(3x - 4) = \dots\dots\dots$

$3(x + 5)(x + 1) + 4x + 4 = \dots\dots\dots$

$2(x + 8)(x + 1) + x + 1 = \dots\dots\dots$

$(x + 1)^2 + (x + 1) = \dots\dots\dots$

$(x + 1)(x - 1) + (2x - 6)(3x + 3) = \dots\dots\dots$

$= \dots\dots\dots$

$(x + 1)(5x + 9) + (4x - 7)(-3x - 3) = \dots\dots\dots$

$= \dots\dots\dots$

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

$x^2 + 2x + 1 + 3(x + 1) = \dots\dots\dots$

$(x + 1)(x + 9) - x - 1 = \dots\dots\dots$

$3x^2 - 3 + x + 1 = \dots\dots\dots$

$= \dots\dots\dots$

$(2x + 2)^2 + x + 1 = \dots\dots\dots$

$= \dots\dots\dots$

$x^4 - 1 = \dots\dots\dots$

CORRIGE – Notre Dame de La Merci - Montpellier

$$3x+3=3\times x+3\times 1=3(x+1)$$

$$(x+1)(x+5)+7(x+1)=(x+1)[(x+5)+7]=(x+1)(x+12)$$

$$(x+1)(3x+4)+(x+1)(x-3)=(x+1)[(3x+4)+(x-3)]=(x+1)[3x+4+x-3]=(x+1)(4x+1)$$

$$(x+1)(4x+9)-5(x+1)=(x+1)[(4x+9)-5]=(x+1)(4x+4)=4(x+1)(x+1)=4(x+1)^2$$

$$(x+1)(8x-3)+4x+4=(x+1)(8x-3)+4(x+1)=(x+1)[(8x-3)+4]=(x+1)(8x+1)$$

$$(x+1)(9x-5)-7x-7=(x+1)(9x-5)-7(x+1)=(x+1)[(9x-5)-7]=(x+1)(9x-12)$$

$$(x+1)(2x+4)-(x-7)(x+1)=(x+1)[(2x+4)-(x-7)]=(x+1)[2x+4-x+7]=(x+1)(x+11)$$

$$2(x+1)(x-4)+3(x+1)(x+8)=(x+1)[2(x-4)+3(x+8)]=(x+1)[2x-8+3x+24]=(x+1)(5x+16)$$

$$7(x+1)(2x+1)-2(x+1)(3x-4)=(x+1)[7(2x+1)-2(3x-4)]=(x+1)[14x+7-6x+8]=(x+1)(8x+15)$$

$$3(x+5)(x+1)+4x+4=(x+1)\times[3(x+5)]+(x+1)\times 4=(x+1)[3(x+5)+4]=(x+1)(3x+15+4) \\ = (x+1)(3x+19)$$

$$2(x+8)(x+1)+x+1=(x+1)\times[2(x+8)]+(x+1)\times 1=(x+1)[2(x+8)+1]=(x+1)(2x+16+1) \\ = (x+1)(2x+17)$$

$$(x+1)^2+(x+1)=(x+1)\times(x+1)+(x+1)\times 1=(x+1)[(x+1)+1]=(x+1)(x+1+1)=(x+1)(x+2)$$

$$(x+1)(x-1)+(2x-6)(3x+3)=(x+1)(x-1)+(2x-6)\times 3\times(x+1)=(x+1)[(x-1)+(2x-6)\times 3] \\ = (x+1)[x-1+6x-18]=(x+1)(7x-19)$$

$$(x+1)(5x+9)+(4x-7)(-3x-3)=(x+1)(5x+9)+(4x-7)\times(-3)\times(x+1)=(x+1)[(5x+9)+(4x-7)\times(-3)] \\ = (x+1)[5x+9-12x+21]=(x+1)(-7x+30)$$

$$(x+1)^2+x^2-1=(x+1)(x+1)+(x+1)(x-1)=(x+1)[(x+1)+1]=(x+1)[(x+1)+(x-1)]=(x+1)\times 2x$$

$$x^2+2x+1+3(x+1)=(x+1)^2+3(x+1)=(x+1)[(x+1)+3]=(x+1)\times(x+4)$$

$$(x+1)(x+9)-x-1=(x+1)(x+9)-(x+1)=(x+1)(x+9)+(x+1)\times(-1)=(x+1)[(x+9)+(-1)] \\ = (x+1)(x+8)$$

$$3x^2-3+x+1=3(x^2-1)+(x+1)=3(x^2-1^2)+(x+1)\times 1=3(x+1)(x-1)+(x+1)\times 1 \\ = (x+1)\times 3\times(x-1)+(x+1)\times 1=(x+1)[3(x-1)+1]=(x+1)(3x-3+1)=(x+1)(3x-2)$$

$$(2x+2)^2+x+1=[2(x+1)]^2+(x+1)\times 1=4(x+1)^2+(x+1)\times 1=4(x+1)\times(x+1)+(x+1)\times 1 \\ = (x+1)[4(x+1)+1]=(x+1)(4x+4+1)=(x+1)(4x+5)$$

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