At first perform operation on the left side of the equation $-4(x-2)(x+3)-5x^2-4$
Find type of expression on the left side
left side has the form of the multiplication of the polynomials by factor $a(bx+c)(dx+e)+fx^2+gx+h$

Find meaning of the terms to perform multiplication of polynomials
$$-4(x-2)(x+3)-5x^2-4$$
$(x-2)(x+3)$ are polynomials that need to be multiplied
-4 is the coefficient by which result of multiplication of polynomials is multiplied $-4(x-2)(x+3)$
.[R]$-5x^2-4$ are terms that need to be combine with like terms of the result of multiplication.
Perform operation on the left side of the equation following steps
1. multiply polynomials $(x-2)(x+3)$
2. multiply monomial by polynomial the result of multiplication in the first steep $-4(x-2)(x+3)$
3. insert the result of multiplication [R] into equation $-4(x-2)(x+3)-5x^2-4=$ [R]$-5x^2-4$
4. simplify the result of multiplication by combining like terms

1.multiply polynomials $(x-2)(x+3)$

the result of multiplication of polynomials $(x-2)(x+3)$ is polynomial $x^2+3x-2x-6$

find and combine like terms in polynomial $x^2+3x-2x-6$

the result of combining like terms is x^2+x-6

2.**multiply the result of multiplication** x^2+x-6 by monomial -4
$$-4(x-2)(x+3)=-4(x^2+x-6)$$

the result of multiplication is the polynomial $-4x^2-4x+24$

3. insert the result of multiplication into equation $-4(x-2)(x+3)-5x^2-4$

$-4(x-2)(x+3)-5x^2-4=-4(x^2+x-6)-5x^2-4=-4x^2-4x+24-5x^2-4$

4. simplify the result of multiplication by combining like terms $-4x^2-4x+24-5x^2-4$

find and combine like terms in polynomial $-4x^2-4x+24-5x^2-4$

the result of combining like terms is polynomial $-9x^2-4x+20$

The result of performing all operations on the left side of equation $3x-4(\mathbf{x}-2)(x+3)-5x^2-4$
is the polynomial $-9x^2-4x+20$
Insert this result into equation
-                               $-9x^2-4x+20=-5x(2x-3)+5x^2-3$