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 $(x-2)(x+3)$

find number of terms in each polynomial to be multiplied
each polynomial has two terms so this is the case multiplying a binomial by binomial $(a+b)(c+d)$
binomial is an expressions with two terms
multiplying a binomial by a binomial is to use the mnemonic **FOIL**
FOIL means to follows the order with which you multiply terms in the binomials. $(a+b)(c+d)$
F is for first Multiply the first terms of each binomial. $([a]+b)([c]+d)$ gives the term ac
O is for outer. Multiply the outer terms of each binomial $([a]+b)(c+[d])$ gives the term ad
I is for inner. Multiply the inner terms of each binomial $(a+[b])([c]+d)$ gives the term bc
L is for last. Multiply the last terms of each binomial $(a+[b])(c+[d])$ gives the term bd

multiply a binomial by a binomial $(x-2)(x+3)$

at first multiply the first terms of each binomial	$(x-2)(x+3)$	gives the term $x*x=x^2$
multiply the outer terms of each binomial	$(x-2)(x+3)$	gives the term $x*3=3x$
multiply the inner terms of each binomial	$(x-2)(x+3)$	gives the term $-2*x=-2x$
multiply the last terms of each binomial	$(x-2)(x+3)$	gives the term $-2*3=-6$

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

find and combine like terms in polynomial $x^2+3x-2x-6$
like terms are grouped in the brackets $[x^2][3x-2x][-6]$
add or subtract like terms in each bracket
note that adding or subtracting like terms is to add or subtract factors e.g $[3x^3+4x^3=[(3+4)x^3]=7x^3$
perform operation in like terms x^2 $[x^2]$
only one factor in bracket x^2 x^2
perform operation in like terms x $[3x-2x]$
$[3x-2x]=(3-2)x=x$ x
perform operation in like terms $[-6]$
only one factor in bracket -6 -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

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

multiply each term in the polynomial (in parenthesis) (x^2+x-6) by monomial -4
expresion in parentheses has 3 terms
multiplying a polynomial by a monomial is to use the distributive property of multiplication * that is to multiply each term in the polynomial by the monomial eg. a(b+c+d+e)=ab+ac+ad+ae
multiply coefficients $-4*1=-4$ add factors 0+2=2 $-4*x^2=\mathbf{-4x^2}$
multiply coefficients $-4*1=-4$ add factors 0+1=1 $-4*x=\mathbf{-4x}$
multiply coefficients $-4*-6=24$ add factors 0+0=0 $-4*-6=\mathbf{24}$

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 $\mathbf{-4x^2-4x+24-5x^2-4}$

find and combine like terms in polynomial $-4x^2-4x+24-5x^2-4$
like terms are grouped in the brackets [-4x^2-5x^2][-4x][24-4]
add or subtract like terms in each bracket
note that adding or subtracting like terms is to add or subtract factors e.g $[3x^3+4x^3=[(3+4)x^3]=7x^3$
perform operation in like terms x^2 [-4x^2-5x^2]
$[-4x^2-5x^2]=(-4-5)\ x^2=-9\ x^2$ $-9\ x^2$
perform operation in like terms x [-4x]
only one factor in bracket -4x -4x
perform operation in like terms [24-4]
[24-4]=(24-4)=20 20

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

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