In Review part i), how are the numbers 8 and 3 connected to the value of a (i.e. 6), the value of b (i.e. 11) and the value of c (i.e. 4)?

In Review part ii), how are the numbers 9 and −8 connected to the value of a (i.e. 12), the value of b (i.e. 1) and the value of c (i.e. − 6)?

The method of factoring $ax^2 + bx + c$ by splitting the value of b into two integers whose product is ac and whose sum is b is called the **method of decomposition**.

Class Ex. #3

Factor, using the method of decomposition, and compare the answers with Class Examples #1 and #2.

a) $2x^2 + 7x + 6$ $(4,3)$

$\times 12$, 7

$2x^2+4x+3x+6$

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

$\boxed{(x+2)(2x+3)}$

b) $5x^2 + 7x + 2$ $(5,2)$

$5x^2+5x+2x+2$

$5x(x+1)+2(x+1)$

$\boxed{(x+1)(5x+2)}$

Class Ex. #4

Factor.

a) $6x^2 + 17x - 3$ $(18,-1)$

$6x^2+18x-x-3$

$6x(x+3)-1(x+3)$

$\boxed{(x+3)(6x-1)}$

b) $3n^2 - 2n - 8$ $(-6,4)$

$3n^2-6n+4n-8$

$3n(n-2)+4(n-2)$

$\boxed{(n-2)(3n+4)}$

c) $12x^2 - 8x + 1$ $(-6,-2)$

$12x^2-6x-2x+1$

$6x(2x-1)-1(2x-1)$

$\boxed{(2x-1)(6x-1)}$

Class Ex. #5

Factor.

a) $15 - 7y - 2y^2$

$-2y^2-7y+15$ $(10,-3)$

$-(2y^2+7y-15)$

$-(2y^2+10y-3y-15)$

$-(2y(y+5)-3(y+5))$

$-(y+5)(2y-3)$

OR $(y+5)(3-2y)$

b) $15k^2 + 5k - 10$ GCF 1st

$5(3k^2+k-2)$ $(-2,3)$

$5(3k^2-2k+3k-2)$

$5(k(3k-2)+1(3k-2))$

$\boxed{5(3k-2)(k+1)}$

$\boxed{\#3\text{-}6}$