

Task. Factorize this sum:

$$(x + y)(2x + 3y) - (x + y)(x + 1)$$

Solution. We should represent this expression as a product. Notice that $(x + y)$ is the common factor of both summands, so

$$\begin{aligned}(x + y)(2x + 3y) - (x + y)(x + 1) &= (x + y)\left((2x + 3y) - (x + 1)\right) \\ &= (x + y)(2x + 3y - x - 1) \\ &= (x + y)(x + 3y - 1).\end{aligned}$$

Answer.

$$(x + y)(2x + 3y) - (x + y)(x + 1) = (x + y)(x + 3y - 1).$$