

A-SSE Equivalent Expressions

Alignments to Content Standards: A-SSE.A.2

Task

Find a value for a , a value for k , and a value for n so that

$$(3x + 2)(2x - 5) = ax^2 + kx + n.$$

IM Commentary

This is a standard problem phrased in a non-standard way. Rather than asking students to perform an operation, expanding, it expects them to choose the operation for themselves in response to a question about structure. Students must understand the need to transform the factored form of the quadratic expression (a product of sums) into a sum of products in order to easily see a , the coefficient of the x^2 term; k , the leading coefficient of the x term; and n , the constant term.

The problem aligns with A-SSE.2 because it requires students to see the factored form as a product of sums, to which the distributive law can be applied.

[Edit this solution](#)

Solution

Using the distributive property of multiplication over addition, we have, for all real number x ,

$$(3x + 2)(2x - 5) = (3x + 2)(2x) + (3x + 2)(-5) = 6x^2 + 4x - 15x - 10 = 6x^2 - 11x - 10$$

So, $a = 6$, $k = -11$, and $n = -10$.



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