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Writing Products as Sums and Sums as Products

LAST YEAR	IMPROVEMENT FACTOR	THIS YEAR
$16x + 1$	4	$4(16x) + 4(1)$ $64x + 4$
$16x + 1$	6	$6(16x) + 6(1)$ $96x + 6$
$16x + 1$	8	$8(16x) + 8(1)$ $128x + 8$

- 1 State how to express the product $4(16x + 1)$ as a sum.
- 2 Explain how to express the product $4(32x + 2)$ as a sum.
- 3 Determine how the different factors alter the expression $16x + 1$.
- 4 Explain how to express the sum $120x + 16$ as a product.
- 5 Write each sum as a product.
- 6 Represent products as sums and vice versa.
- + with lots of tips, answer keys, and detailed answer explanations for all of the problems.



The complete package, including all problems, hints, answers, and detailed answer explanations is available for all [sofatutor.com](https://www.sofatutor.com) subscribers.



State how to express the product $4(16x + 1)$ as a sum.

Choose the correct statements.

$$4(16x + 1) = ?$$

- A Multiply the factor 4 only with the left summand.
- B Multiply the factor 4 with both summands.
- C $4(16x + 1)$ equals $(4)(16x) + (4)(1)$.
- D $4(16x + 1)$ equals $416x + 41$.
- E Combine the like terms to get that $4(16x + 1)$ equals $64x + 4$.



Hints for solving these problems

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of 6

State how to express the product $4(16x + 1)$ as a sum.

Hint #1

If you multiply a factor by a sum, you use the distributive property, $a(b + c) = (a)(b) + (a)(c)$.

Hint #2

Combining like terms means, for example, $(5)(2)(y) = 10y$.

Here the numbers 5 as well as 2 have been multiplied to 10.

Hint #3

The result on the right side should be a sum.



Answers and detailed answer explanations for these problems

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of 6

State how to express the product $4(16x + 1)$ as a sum.

Answer key: B, C, E

$$4(16x + 1) = ?$$

First we multiply the factor by each sum in the parentheses:

- $(4)(16x)$
- $(4)(1)$

Next we combine like terms:

- $(4)(16x) = 64x$
- $(4)(1) = 4$

Last, we add the resulting terms to get the sum, $4(16x + 1) = 64x + 4$.