

Words to Expressions 1

Task

Write an expression that records the calculations described below, but do not evaluate.

Add 2 and 4 and multiply the sum by 3.

Next, add 5 to that product and then double the result.



Commentary

This problem allows student to see words that can describe the expression from part (c) of "Watch out for Parentheses." Additionally, the words (add, sum) and (product, multiply) are all strategically used so that the student can see that these words have related meanings.

Solution

Taking the instructions step by step we have:

- Add 2 and 4 and multiply the sum by 3: $3(2 + 4)$ or possibly $(2 + 4)3$.
- Add 5 to that product gives $5 + 3(2 + 4)$ or $3(2 + 4) + 5$ or even $(2 + 4)3 + 5$.
- Then double the result means we need to multiply the entire expression by 2:

$$2(5 + 3(2 + 4))$$

or

$$(5 + 3(2 + 4))2$$

or

$$2(3(2 + 4) + 5)$$

or

$$(3(2 + 4) + 5)2$$

or

$$2((2 + 4)3 + 5)$$

or

$$((2 + 4)3 + 5)2$$

Additionally, this can be written as

$$(5 + 3(2 + 4)) + (5 + 3(2 + 4)).$$

The differing ways the calculations can be expressed also help to illustrate the commutative laws of multiplication and addition.

