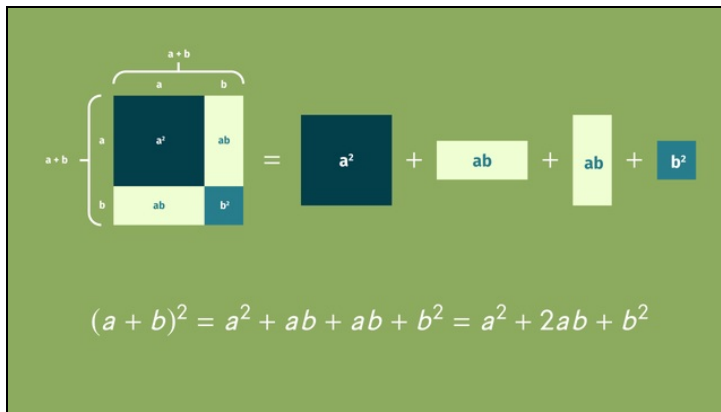




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# Multiplying Special Case Polynomials



- 1 Explain the FOIL method.
- 2 Calculate the term  $(a + b)^2$ .
- 3 Summarize the multiplication of special binomials.
- 4 Use the area model to simplify the expression.
- 5 Explain the FOIL method to Jack.
- 6 Simplify the following expressions.
- + 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.



## Explain the FOIL method.

Fill in the blanks.

$$(a - b)^2 = (a - b)(a - b) = ?$$

- left  $-a^2$   $2ab$  outer last indirect  $b^2$   $-ab$   $ab$   $-b^2$   
 $-ab$  former  $a^2$   $b^2$  inner other first  $a^2$

**F**

Multiplying the .....<sub>1</sub> terms gives us .....<sub>2</sub>.

**O**

Multiplying the .....<sub>3</sub> terms gives us .....<sub>4</sub>.

**I**

Multiplying the .....<sub>5</sub> terms leads to .....<sub>6</sub>.

**L**

Finally, multiplying the .....<sub>7</sub> terms gives us .....<sub>8</sub>.



$$(a - b)(a - b) =$$

$$\dots\dots\dots^9 - \dots\dots\dots^{10} + \dots\dots\dots^{11}$$



## Hints for solving these problems

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of 6

### Explain the FOIL method.

#### Hint #1

You can use the distributive property for  $a(a - b) = a^2 - ab$  and for  $-b(a - b) = -ab + b^2$ .

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#### Hint #2

$$\begin{aligned}(a + b)(a + b) &= \\ &= a^2 + ab + ab + b^2 \\ &= a^2 + 2ab + b^2\end{aligned}$$

Here is another example.

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## Answers and detailed answer explanations for these problems

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of 6

### Explain the FOIL method.

**Answer key:** 1: first // 2:  $a^2$  // 3: outer // 4:  $-ab$  // 5: inner // 6:  $-ab$  // 7: last // 8:  $b^2$  // [9+11]1:  $a^2$  or  $b^2$  // 10:  $2ab$

**Each answer can only be used once. You can answer them in whatever order you want.**

We can simplify  $(a - b)^2 = (a - b)(a - b)$  using FOIL multiplication.

For  $(a + b)(a + b)$ , use the FOIL method:

**F** multiply the first  $a \times a$

**O** multiply the outer  $a \times -b$

**I** multiply the inner  $-b \times a$

**L** multiply the last  $-b \times b$

For the final step, we add all the resulting terms:

$$a^2 - ab - ab + b^2 = a^2 - 2ab + b^2$$