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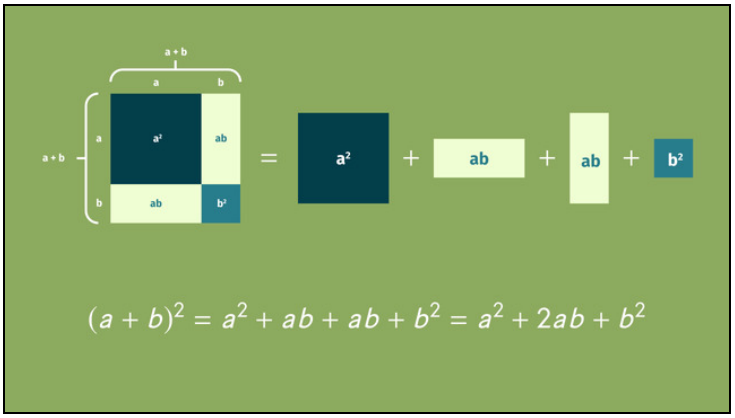
Multiplying Special Case Polynomials



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.

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 _____[1] terms gives us _____[2].

O

Multiplying the _____[3] terms gives us _____[4].

I

Multiplying the _____[5] terms leads to _____[6].

L

Finally, multiplying the _____[7] terms gives us _____[8].

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

_____[9] $-$ _____[10] $+$ _____[11]

Hints for solving these problems

1 of 6

Explain the FOIL method.

Hint #1

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

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.

Answers and detailed answer explanations for these problems

1 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: $2ab$

[1]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:

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