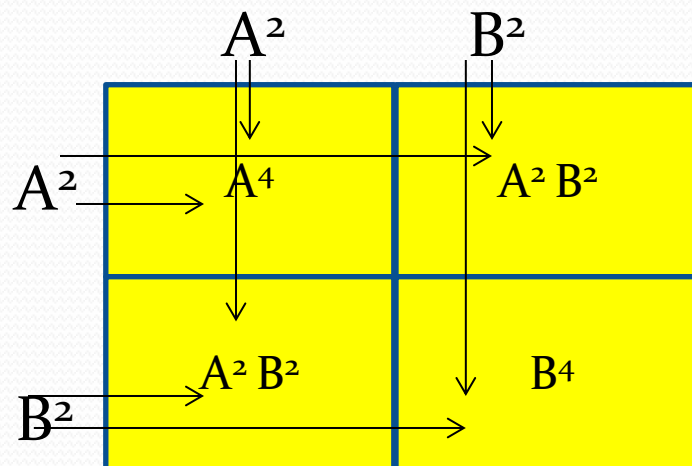


Multiplication in Algebra



Solved example $(A^2 + B^2) \times (A^2 + B^2)$



To help understand the multiplication in algebra we make a grid (4x4 in this case) and then in each box we do the multiplication of each element and we get answer in each box.

Now we take all the answers and then add these up. so we have the following

$$A^4 + \underbrace{A^2 B^2 + A^2 B^2}_{2A^2 B^2} + B^4$$

we have two same expressions. $A^2 B^2 + A^2 B^2$ and this can be written as $2A^2 B^2$

So we have the answer as $A^4 + 2A^2 B^2 + B^4$



Lets take another example $(a^2 + ab + 2) \times (a^2 + 2ab + 3)$

| | a^2 | ab | 2 |
|-------|----------|------------|--------|
| a^2 | a^4 | $a^3 b$ | $2a^2$ |
| $2ab$ | $2a^3 b$ | $2a^2 b^2$ | $4ab$ |
| 3 | $3a^2$ | $3ab$ | 6 |

To help understand the multiplication in algebra we make a grid (3x3 in this case) and then in each box we do the multiplication of each element and we get answer in each box.

Now we take all the answers and then add these up. so we have the following

$$a^4 + a^3 b + 2a^2 + 2a^3 b + 2a^2 b^2 + 4ab + 3a^2 + 3ab + 6$$

Find all the common expressions and add up those

So we have the answer as $a^4 + 3a^3 b + 5a^2 + 2a^2 b^2 + 7ab + 6$



Lets practice $(a^3 + b^3+2)x(a^2 + b^2 +3)$

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Ans:

$$(a^3 + b^3)x(a^2 + b^2)$$

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Ans:

Lets practice $(a^3+b+3)(a^2+2ab+3)$

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Ans:

$$(a^3 + 2ab+2)(a^4 +3)$$

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Ans:

Lets practice $(a^3+b+3)(a^2+2ab+3)$

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Ans:

$$(a^3 + 2ab+2)(a^4 +3)$$

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Ans: