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Algebra - Expanding Brackets

The clue is in the name with expanding brackets. You will be given an expression that includes brackets, and asked to expand it. All you need to do is ensure you multiply all of the terms within the brackets by whatever is on the outside. Let's look at an example…

Worked example 1:

Expand the following brackets:

$2(x + 4)$

To answer this you need to multiply the x the 4 by 2. We do this because the 2 sitting next to the bracket literally means $2 \times (x + 4)$, we just don't right in the multiplication sign. So when you expand the bracket your answer will be:

$2x + 8$

More advanced

The hardest questions you will be asked for expanding brackets will involve multiplying two sets of brackets together. You answer these sort of questions using the FOIL method. You need to make sure you multiply every term in the left hand bracket by every term in the right hand bracket. FOIL reminds you which terms you need to multiply to expand the bracket - it stands for:

First
Outside
Inside
Last

Worked example 2:

Expand the following brackets:

$(x + 2)(x + 3)$

In this example the xs are the first terms, x and 3 are the outside terms, 2 and x are the inside terms and 2 and 3 are the last terms. When you multiply out these brackets you get:

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$x^2 + 3x + 2x + 6$

The last step is to simply this as far as possible by adding the $3x$ and the $2x$ together. So the final answer is:

$x^2 + 5x + 6$

Expanding Brackets – Practice Questions

1) *Expand the following brackets:*

   a. 2(x + 5)

   b. 3(2a – 3)

   c. 5(y + 3)

   d. 4(3 – 2b)

   e. 2a(2 + b)

2) Expand the following brackets

   a. (x + 3)(x + 4)

   b. (x + 2)(x – 5)

   c. (a – 2)(a – 1)

   d. (y + 6)(y – 5)