

Expanding brackets

Please do all working in your books and do not write on the sheet.

When we expand a bracket, we need to multiply the term outside the bracket with each term inside the bracket!

For example: $5(x + 3) = 5x + 15$

1) Now try expanding these expressions:

- | | | |
|---------------|---------------|---------------|
| a) $5(x + 1)$ | b) $7(x + 3)$ | c) $x(2 + 4)$ |
| d) $8(x + 2)$ | e) $m(x + 6)$ | f) $a(x + 9)$ |
| g) $4(x - 4)$ | h) $2(x - 3)$ | i) $x(x + 2)$ |
| j) $x(x + 6)$ | k) $m(x - n)$ | l) $x(x - 5)$ |

2) Now try expanding these expressions:

- | | | |
|----------------|----------------|----------------|
| a) $5(2x + 1)$ | b) $7(3x + 3)$ | c) $9(2x + 1)$ |
| d) $5(4x + 5)$ | e) $m(2x + 4)$ | f) $a(2x + 9)$ |
| g) $4(3x - 2)$ | h) $4(3x - 3)$ | i) $2(4x + a)$ |
| j) $5(2x - 4)$ | k) $x(2x + 7)$ | l) $3x(x + 4)$ |

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Factorisation

Factorising is the reverse of expanding brackets, when we have an expression we need to find a common multiple and put that outside the bracket.

For example: $5x + 15$ (a common multiple is 5)
 $= 5(x + 3)$

3) Now try factorising these expressions:

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|---------------|--------------|---------------|
| a) $4x + 2$ | b) $6x - 12$ | c) $5x + 20$ |
| d) $4x - 32$ | e) $6x - 8$ | f) $21x + 14$ |
| g) $15x + 20$ | h) $8x - 2$ | |

4) Now try factorising these expressions:

- | | | |
|-----------------|-----------------|------------------|
| a) $x^2 + x$ | b) $x^2 + 4x$ | c) $10x^2 + 20x$ |
| d) $4x^2 + 4x$ | e) $5x^2 - 5x$ | f) $9x^2 + 3x$ |
| g) $4x^2 - 12x$ | h) $7x^2 - 21x$ | |

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