

NICKS & TRICKS

GUIDE TO 2nd YEAR MATHS

Topic 8 – Factorising

Always Remember!

1. 4 forms of Factorising

(vii) FACTORISING

4 Different Types

<p style="text-align: center; color: orange; font-weight: bold;">Highest Common Factor</p> $8x + 12x^2$ $4x(2 + 3x)$ <ol style="list-style-type: none"> 1. Divide by biggest thing that goes into both terms 2. Write it outside a bracket! 	<p style="text-align: center; color: orange; font-weight: bold;">Factorise by Grouping</p> $5fh - 2h^2 + 15f - 6h$ $h(5f - 2h) + 3(5f - 2h)$ $(h + 3)(5f - 2h)$ <ol style="list-style-type: none"> 1. Do 2 Highest Common Factors. 2. Combine things outside brackets into their own bracket 3. Write down the repeating bracket once! <p style="font-size: small; color: blue;">If your brackets don't match, try moving around some terms before you start!</p>	<p style="text-align: center; color: orange; font-weight: bold;">Difference of 2 Squares</p> $16a^2 - 64$ $(4a - 8)(4a + 8)$ <ol style="list-style-type: none"> 1. Write down: (+)(-) 2. Put square root of the term on the left into left side of both brackets. 3. Square root of right term into right side of both brackets (ignore -) 	<p style="text-align: center; color: orange; font-weight: bold;">Quadratics</p> $2x^2 + 8x + 8$ <p style="font-size: small; color: red; text-align: right;"> $2 \times 8 = 16$ $4 + 4 = 8$ </p> $2x^2 + 4x + 4x + 8$ $2x(x + 2) + 4(x + 2)$ $(2x + 4)(x + 2)$ <ol style="list-style-type: none"> 1. Multiply first and last number (ignore -). 2. Factors of this number that give you middle number? 3. Swap out middle number for these 2 numbers. 4. Do Factorising by Grouping!
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Worked Example

$$\frac{3}{8} + \frac{6}{4}$$

Factorise $n^2 - 11n + 18$

$$n^2 - 11n + 18$$

$$(n - 9)(n - 2)$$

$$-9n$$

$$-2n$$

Quadratic

Find common numbers for 18 that will equal to 11

$$\begin{array}{r} -2n \\ -9n \\ \hline -11n \end{array}$$

3 Questions – 15 mins – Time yourself!

Question 1:

Factorise fully $wy - y - 1 + w$.

Question 2:

Use factorisation to simplify.

$$\frac{4e^2 - 9}{2e^2 + 3e - 9}$$

Question 3:

Factorise the following expression.

$$25x^2 - 49n^2$$