# NICKS & TRICKS

# LCOL Guide – Algebra Factorising

## 1. Highest Common Factor

$$8x + 12x^2$$

$$4x(2 + 3x)$$

1. Divide by biggest thing that goes into both terms
2. Write it outside a bracket!

## 2. Grouping

$$5fh - 2h^2 + 15f - 6h$$

$$h(5f - 2h) + 3(5f - 2h)$$

$$(h + 3)(5f - 2h)$$

1. Do 2 Highest Common Factors.
2. Combine things outside brackets into their own bracket
3. Write down the repeating bracket once!

If your brackets don't match, try moving around some terms before you start!

## 3. Difference of 2 Squares

$$16a^2 - 64$$

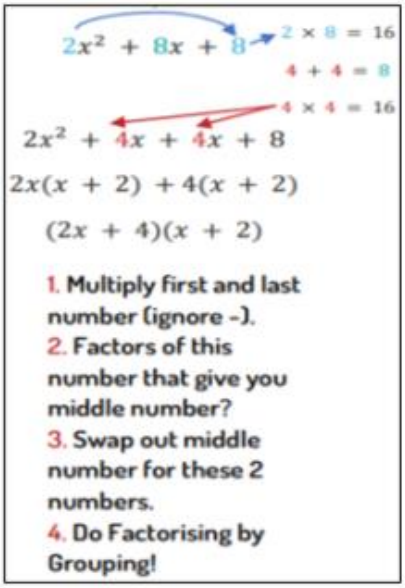
$$(4a - 8)(4a + 8)$$

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 -)

## 4. Quadratics




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!

# Worked Example

**Question:**

Solve the equation $x^2 - 3x - 4 = 0$

$(x - 4)(x + 1) = 0$ ← Factorise

| | |
|---|---|
| $x - 4 = 0$ | $x + 1 = 0$ |
| $x = 4$ | $x = -1$ |

# 2 Questions – Time yourself!

## Question 1

Solve the equation $2x^2 - 7x - 3 = 0$. Give each answer correct to 2 decimal places.

## Question 2

Solve for x

$(x+5)\ (3x-4)-3(x^2+2)\ +4 = 0$