

## Section 2: Inequalities

### Crucial points

1. **Be careful when writing an inequality the other way round**

Make sure that you reverse the inequality sign if you want to write the inequality the other way round.

**✗ Wrong:**  $3 < 2x + 1$   
 $2x + 1 < 3$  ✗

**✓ Right:**  $3 < 2x + 1$   
 $2x + 1 > 3$  ✓

2. **Be careful when multiplying an inequality**

Make sure that you reverse the inequality sign if you multiply by a negative number.

**✗ Wrong:**  $-x < 3 - 2x$   
 $x < -3 + 2x$  ✗

**✓ Right:**  $-x < 3 - 2x$   
 $x > -3 + 2x$  ✓

Multiply both sides by -1

Multiply both sides by -1 and **reverse the inequality**

3. **Be careful when dividing an inequality**

Make sure that you reverse the inequality sign if you divide by a negative number.

**✗ Wrong:**  $-2x \geq 6x + 4$   
 $x \geq -3 - 2$  ✗

**✓ Right:**  $-2x \geq 6x + 4$   
 $x \leq -3 - 2$  ✓

Divide both sides by -2

Divide both sides by -2 and **reverse the inequality**

4. **Sketching a graph or using a number line can help solve inequalities**

When dealing with a quadratic inequality, always sketch a graph or a number line so that you can be sure that you are selecting the correct part as the solution.

## Edexcel AS Maths Equations 2 Crucial points

### 5. Make sure that the solution is the correct range of values!

With quadratic inequalities, make sure that you express the solution set correctly as either one range of values or two.

If the solution is all values between  $-2$  and  $1$ :

**✗ Wrong:**  $-2 < x$  or  $x < 1$  ✗

**✓ Right:**  $-2 < x < 1$  ✓

This is wrong, as both must be true

If the solution is all values less than  $-2$  or greater than  $1$ :

**✗ Wrong:**  $1 < x < -2$  ✗

**✓ Right:**  $x < -2$  or  $x > 1$  ✓

This is wrong as there are no values greater than  $1$  and less than  $-2$ !