

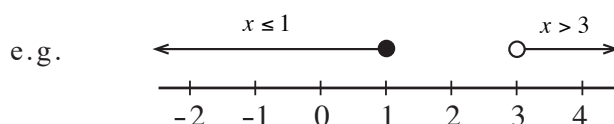
Solving Linear Inequalities

Essential information

- $>$ means 'is greater than'; for example, $5 > 3$.
- $\geq$ means 'is greater than or equal to'; for example, $5 \geq 3$, $5 \geq 5$.
- $<$ means 'is less than'; for example, $3 < 5$.
- $\leq$ means 'is less than or equal to'; for example, $3 \leq 5$, $5 \leq 5$.
- $\neq$ means 'is not equal to'; for example, $3 \neq 5$.

You can represent inequalities on a number line using:

- a small unshaded circle, $\bigcirc$, for the end point of $<$
- a small shaded circle, $\bullet$, for the end point of $\leq$.



Linear inequalities are of the form

$$ax + b \leq c \text{ or } ax + b < c, \text{ etc.}$$

For example, $2x + 3 \leq 7$

Solving linear inequalities means manipulating the inequality to give $x \geq \dots$ or $x \leq \dots$

For example, $2x + 3 \leq 7 \Rightarrow 2x \leq 4 \Rightarrow x \leq 2$

General linear inequality in two variables is of the form

$ax + by \geq a$ and can be illustrated graphically.

For example, $x + y \leq 1$

