

# Journal

## 1 Review

### Inequalities

#### One-Variable Inequalities

In the case of an inequality like

$$-3 \leq 1 - 2x < 4x$$

You can split it up into two equations:

$$-3 \leq 1 - 2x, 1 - 2x < 4x$$

As both are true, this is an "and" statement:

$$-3 \leq 1 - 2x \text{ and } 1 - 2x < 4x$$

From here, you can simplify to get a final answer:

$$2x \leq 4 \rightarrow x \leq 2$$

$$-6x < -1 \rightarrow x > 1/6$$

Finally:

$$x \leq 2 \text{ AND } x > 1/6$$

Alternatively:

$$1/6 < x \leq 2$$

#### Two-Variable Inequalities

With a two-variable inequality like  $y > -x^3 + 4$