

## Set Notation for Inequalities

### Starter

**N.B.** When multiplying/dividing by a negative number, change the direction of the inequality.

1. **(Review of last lesson)**

Solve these inequalities, expressing your answer as (i) an inequality and (ii) as a diagram:

(a)  $-30 \leq -7x + 12 < 61$                       (b)  $x - 9 < 6x + 1 < 2x + 13$

### Notes

The formal way to write inequalities is with curly brackets, e.g.  $\{x : 1 < x < 5\}$

$$\{x : 1 < x < 5\} \equiv 1 < x < 5$$

$$\{x : x \geq 7\} \equiv x \geq 7$$

$\{x : \quad\} \equiv$  "x is a value such that..."

**E.g. 1** Draw a number line to illustrate each inequality:

(a)  $\{x : x > 6\}$                       (b)  $\{x : -4 \leq x < 9\}$

**E.g. 2** Write in set notation the solutions for the inequalities:

(a)  $5x - 2 > 43$                       (b)  $5 < 3x - 1 < 17$

### [Solutions to Starter and E.g.s](#)

### Exercise

9-1 class textbook:                      p510 E16.1 Qu 1ace, 2ac, 3, 4

A\*-G class textbook:                      No exercise

9-1 homework book:                      p172 E16.1 Qu 1-5

A\*-G homework book:                      No exercise

### Summary

Set notation uses curly brackets, e.g.  $\{x : 1 < x < 5\}$

$$\{x : 1 < x < 5\} \equiv 1 < x < 5$$

$$\{x : x \geq 7\} \equiv x \geq 7$$

[Homework book answers \(only available during a lockdown\)](#)