chapter 7

Algebra 3

Section 7.1 Revision

$6 \geqslant 5$

$-6 < -5$

$\mathbb{C}$ Complex (Re + Im)

$\mathbb{N}$ natural.

$\mathbb{R}$ no. line

$\mathbb{Z}$ whole no.

$\mathbb{Q}$ fraction

$\mathbb{I}r$, $\mathbb{R}\setminus\mathbb{Q}$ } not fraction

PROJECT MATHS Text & Tests 6

Example 1

Solve the inequality $3x + 7 \geqslant x + 2$, $x \in \mathbb{Z}$, and plot the solution on a number line.

$-x, -7$

$3x + 7 \geq x + 2$

$2x \geq -5$

$\div 2$

$x \geq -\frac{5}{2}$ (or -2.5)

Example 2

Solve the inequality $\frac{1}{6}(x-1) \geq \frac{1}{3}(x-4), x \in \mathrm{R}$.
Graph your solution on a number line.

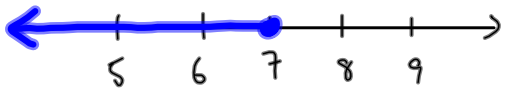
$\frac{1}{6}(x-1) \geq \frac{1}{3}(x-4)$

$(\times 6)$ $\quad x-1 \geq 2(x-4)$

$x-1 \geq 2x-8$

$-2x, +1$ $\quad -x \geq -7$

$\times -1$ $\quad x \leq 7$



Example 3

Solve the inequality $-9 < 3 - 4x \leq 1, x \in \mathrm{R}$.
Graph your solution on the number line.

LHS MIDDLE RHS

$-9 < 3-4x \leq 1$

-3 $\quad -12 < -4x \leq -2$

$\div -4$ $\quad \frac{-12}{-4} > \frac{-4x}{-4} \geq \frac{-2}{-4}$

$3 > x \geq +\frac{1}{2}$

switch $\quad \frac{1}{2} \leq x < 3$