

Linear Inequalities

①

Ex $\frac{2}{-27} < \frac{3}{-3}$ (C-6)

$$a < b$$

②

$$a < b$$

③

$$a > b$$

Condⁿ

$$-a > -b$$

$$\frac{1}{a} > \frac{1}{b}$$

$$a+x > b+x$$

④

$$a > b$$

$$a-x > b-x$$

⑤

$$a > b$$

$$xa > xb$$

$x > 0$

Ex → 6.1

⑥

$$24x < 100$$

Divide both side by 24

$$\frac{24x}{24} < \frac{100}{24}$$

$$x < \frac{25}{6}$$

(i) Natural no $x = \{1, 2, 3, 4\}$

(ii) Integer $x = \{ \dots, -2, -1, 0, 1, 2, 3, 4 \}$
or $x \in (-\infty, 4]$

⑦

$$3x + 8 > 2$$

$$3x > 2-8$$

$$3x > -6$$

$$x > -\frac{6}{3}$$

$$x > -2$$

(i) Integer $[-1, \infty)$

$$= \{-1, 0, 1, 2, 3, \dots\}$$

(ii) Real no

$$= (-2, \infty)$$

$$\underline{6} \quad 3x - 7 > 5x - 1$$

$$3x - 5x > -1 + 7$$

$$-2x > 6$$

$$-x > \frac{6}{2}$$

$$-x > 3$$

$$x < -3$$

$$(-\infty, -3)$$

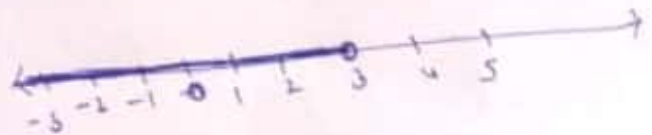
$$\textcircled{17} \quad 3x - 2 < 2x + 1$$

$$3x - 2x < 1 + 2$$

$$x < 3$$

$$(-\infty, 3)$$

On graph



$$\underline{9} \quad x + \frac{x}{2} + \frac{x}{3} < 11$$

$$\frac{6x + 3x + 2x}{6} < 11$$

$$\frac{11x}{6} < 11$$

$$x < 6$$

$$(-\infty, 6)$$

Complete 4b to

Ques 20

$$\underline{12} \quad \frac{1}{2} \left(\frac{3x}{5} + 4 \right) \geq \frac{1}{3} (x - 6)$$

$$\frac{1}{2} \left(\frac{3x + 20}{5} \right) \geq \frac{x - 6}{3}$$

$$9x + 60 \geq 10x - 60$$

$$9x - 10x \geq -60 - 60$$

$$-x \geq -120$$

$$x \leq 120 \quad (-\infty, 120]$$