

Fully-Worked Solutions

PRACTICE 7

Section A

- 1 Answer: C
2 $3 < 5 \Rightarrow -3 > -5$

Answer: B

$$3 \frac{1 \times 8}{5 \times 8} = \frac{8}{40}$$

$$\frac{3 \times 5}{8 \times 5} = \frac{15}{40}$$

$$\frac{8}{40} < \frac{15}{40}$$

$$\therefore \frac{1}{5} < \frac{3}{8}$$

Answer: A

- 4 $3x + 4 > 13$
 $3x > 13 - 4$
 $3x > 9$
 $x > 3$
 $x > 3, \therefore x_{\min} = 4$

Answer: C

- 5 $28x + 20(2x) \leq 340$
 $68x \leq 340$
 $x \leq 5$

Answer: B

- 6 $3 - \frac{2}{3}p \geq \frac{p}{2} + 10$
 $3 \times 6 - \frac{2}{3}p \times 6 \geq \frac{p}{2} \times 6 + 10 \times 6$
 $18 - 4p \geq 3p + 60$
 $-4p - 3p \geq 60 - 18$
 $-7p \geq 42$
 $p \leq -6$

Answer: D

- 7 $2 - 3y > 3 - 2y$
 $-3y + 2y > 3 - 2$
 $-y > 1$
 $y < -1$

$$\therefore y = -2$$

Answer: A

8 Answer: A

- 9 $4 \leq 2 - 2x < 10$
 $4 \leq 2 - 2x$ $2 - 2x < 10$
 $2 \leq -2x$ $-2x < 8$
 $x \leq -1$ $x > -4$

$$\therefore -4 < x \leq -1$$

Answer: C

- 10 $5 < 4 - x \leq 8$
 $5 < 4 - x$ $4 - x \leq 8$
 $1 < -x$ $-x \leq 4$

$$x < -1 \quad x \geq -4$$

$$\therefore -4 \leq x < -1$$

Answer: C

- 11 $x \geq 4$ and $x < 8$

$$x = 4, 5, 6, 7$$

Answer: A

- 12 $3 - x < 5$ and $2x - 3 \leq 3$

$$-x < 2 \quad 2x \leq 6$$

$$x > -2 \quad x \leq 3$$

$$\therefore x = -1, 0, 1, 2, 3$$

Answer: B

Section B

- 1 (a)

$$-2 < -5$$

$\times$

- (b)

$$\frac{2}{3} < \frac{7}{9}$$

$\checkmark$

- (c)

$$\frac{1}{3} < \frac{1}{4}$$

$\times$

- (d)

$$1\frac{5}{6} < 1\frac{8}{9}$$

$\checkmark$

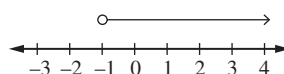
- 2 (a) $-10 < 0$

- (b) $7 < 15$

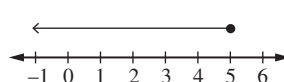
- (c) $\frac{3}{100} < \frac{1}{3}$

- (d) $-1\frac{1}{2} < 1\frac{1}{2}$

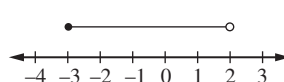
- 3 (a) $x > -1$



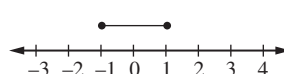
- (b) $x \leq 5$



- (c) $-3 \leq x < 2$



- (d) $-1 \leq x \leq 1$



- 4 (a) $1 > -3$

- (b) $-10 > -4$

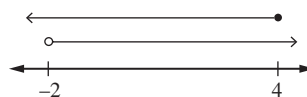
- (c) $-2 < 12$

- (d) $-4 < -6$

Section C

- 1 (a) (i) $x = \text{marks}$
 $x \geq 50$
(ii) $v = \text{speed limit}$
 $v \leq 60$
(iii) $y = \text{number of passengers}$
 $10 \leq y \leq 40$
- (b) (i) $3 - s > s - 5$
 $-s - s > -5 - 3$
 $-2s > -8$
 $s < 4$
- (ii) $\frac{1}{3}r + 2 \geq 5$
 $\frac{1}{3}r \geq 3$
 $r \geq 9$
- (c) $\frac{2-4x}{3} < 2$
 $2 - 4x < 6$
 $-4x < 4$
 $x > -1$
- 2 (a) $-6 < \frac{5x-7}{2} < 4$
 $-12 < 5x - 7 < 8$
 $-5 < 5x < 15$
 $-1 < x < 3$
- (b) (i) $3x + 5 \geq 29$
(ii) $3x \geq 24$
 $x \geq 8$
 $\therefore x_{\min} = 8$

$$\begin{aligned} \text{(c)} \quad 3p + 5 &> -1 \quad \text{and} \quad 5 - p \geq 1 \\ 3p &> -6 \quad \quad \quad -p \geq -4 \\ p &> -2 \quad \quad \quad p \leq 4 \end{aligned}$$



$$\therefore -2 < p \leq 4$$

- 3 (a) (i) $x + 2x \geq 9$
 $3x + 2x \leq 20$
- (ii) $3x \geq 9$ $5x \leq 20$
 $x \geq 3$ $x \leq 4$
 $3 \leq x \leq 4$
 $\therefore x = 3, 4$
- (b) $\frac{k+5}{3} < 3$ and $5 - 2k \leq 3$
 $k + 5 < 9$ $-2k \leq -2$
 $k < 4$ $k \geq 1$
 $1 \leq k < 4$
 $\therefore k = 1, 2, 3$
- (c) $5 - \frac{2m}{3} \leq 3$ $3m - 8 < 12 - m$
 $-\frac{2m}{3} \leq -2$ $4m < 20$
 $-2m \leq -6$ $m < 5$
 $m \geq 3$
 $\therefore 3 \leq m < 5$