

1. Write down the inequality, in terms of n, shown by the number line. [1]



2. Write down the inequality in *x* shown by the number line. [1]



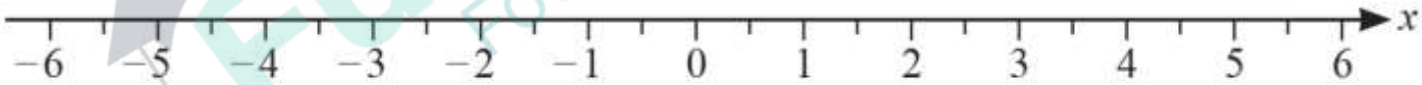
3. Write down the inequality shown by the number line. [1]



4. Represent the inequality $-4 \leqslant x < 2$ on the number line below. [1]



5. (i) Solve. $x - 3 \leqslant 5x + 7$ [2]
   (ii) Show your answer to part (b)(i) on the number line. [1]



6. Solve the following inequalities and represent solution on a number line:
   (a) 3n – 11 > 5n – 18

   (b) 3n – 5 >17 + 8n

   (c) $7 - 8x \geq 19 + 2x$

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(d) $6n + 3 > 8n$

(e) $n + 7 < 5n - 8$

(f) $5t + 23 < 17 - 2t$

(g) $3x - 1 \leq 11x + 2$

(h) $7x - 5 > 3(2 - 5x)$

(i) $5(x - 4) < 3(12 - x)$

(j) $\frac{x}{2} - 13 > 12 + 3x$

(k) $\frac{2x-3}{5} - \frac{x}{3} \leq 2$

(l) $6(2 - 3x) - 4(1 - 2x) \leq 0$

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(m) $\frac{2x+1}{3} \leq \frac{5x-8}{4}$

(n) $2x + 5 < \frac{x-1}{4}$

(o) $\frac{x}{3} + 5 > 2$

(p) $\frac{x}{2} + \frac{x-2}{3} < 5$

7. (a) List the positive integers that satisfy the inequality $x + 13 \geq 3x + 7$

(b) Find the positive integers that satisfy the inequality $t + 2 > 3t - 6$

(c) Solve the inequality for positive integer values of x $\frac{21+x}{5} > x + 1$

(d) Find the integer values of n that satisfy the inequalities $15 \leq 4n < 28$

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(e) Find the integers which satisfy the inequality $-5 < 2n - 1 \leq 5$

(f) Find the integer values of n that satisfy this inequality $-7 < 4n \leq 8$

(g) Find the **integer** values of n that satisfy the inequality $18 - 2n < 6n \leq 30 + n$

(h) Find the integer values for x which satisfy the inequality $-3 < 2x - 1 \leq 6$

(i) List all the **prime numbers** which satisfy this inequality $16 < 2x - 5 < 48$

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ANSWERS:

1. **n > -1** **2.** $-2 < x \leqslant 1$ 3. $-2 < x \leqslant 4$ **5. (i)** $x \geqslant -2.5$

6. (a) **n < 3.5** (b) **n < -4.4** (c) $x \leq$ **-1.2** (d) **n < 1.5** (e) **n > 3.75** (f) **t < -6/7**
(g) $x \geq$ **- 3/8** (h) $x >$ **0.5** (i) $x <$ **7** (j) $x <$ **-10** (k) $x \leq$ **39** (l) $x \geq$ **0.8**
(m) $x \geq$ **4** (n) $x <$ **-3** (o) $x >$ **-9** (p) $x <$ **6.8**

7. (a) **1, 2, 3** (b) **1, 2, 3** (c) **1, 2, 3** (d) **4, 5, 6** (e) **–1, 0, 1, 2, 3** (f) **−1, 0, 1, 2**
(g) **3, 4, 5, 6** (h) **0, 1, 2, 3** (i) **11, 13, 17, 19, 23**

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