

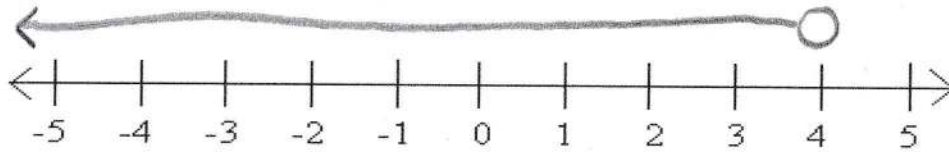
INEQUALITIES - PRACTICE QUESTIONS



metatutor

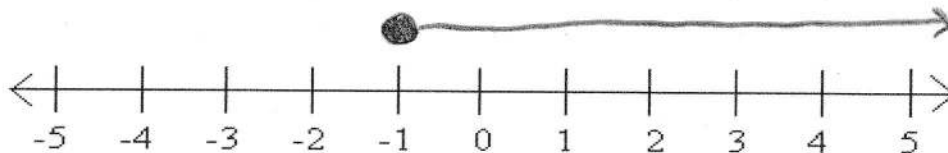
1.

Mark the inequality $x < 4$ on the number line below.



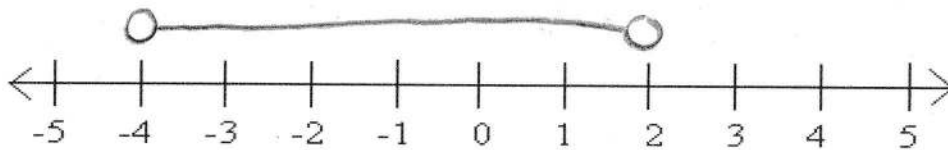
2.

Mark the inequality $x \geq -1$ on the number line below.



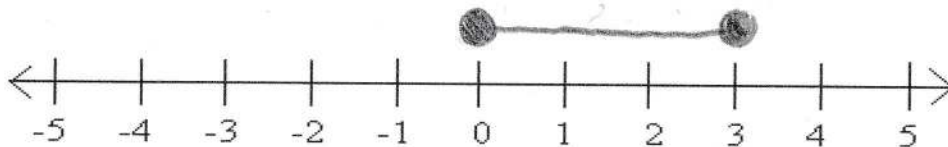
3.

Mark the inequality $-4 < x < 2$ on the number line below.



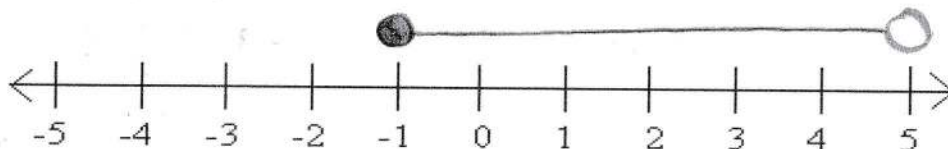
4.

Mark the inequality $0 \leq x \leq 3$ on the number line below.



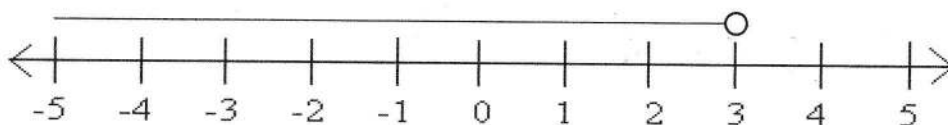
5.

Mark the inequality $-1 \leq x < 5$ on the number line below.



6.

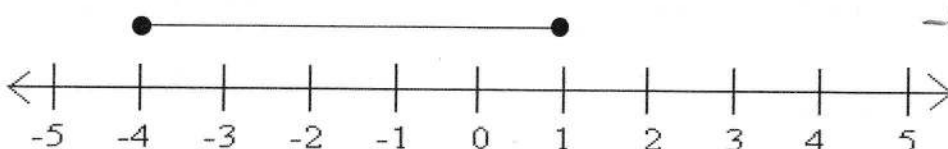
What is the inequality represented on the number line below?



$x < 3$

7.

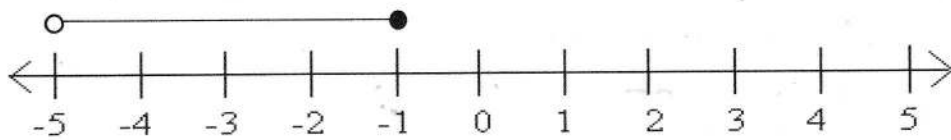
What is the inequality represented on the number line below?



$-4 \leq x \leq 1$

8.

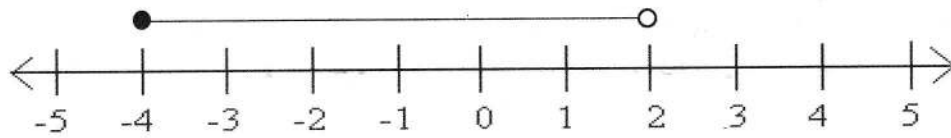
What is the inequality represented on the number line below?



$$-5 < x \leq -1$$

9.

What is the inequality represented on the number line below?



$$-4 \leq x < 2$$

10.

List all integers that satisfy the inequality $-2 < x \leq 6$.

$$-1, 0, 1, 2, 3, 4, 5, 6$$

11.

List all integers that satisfy the inequality $-9 \leq x < -2$.

$$-9, -8, -7, -6, -5, -4, -3$$

12.

List all integers that satisfy both the inequalities $x < 0$ and $x \geq -8$.

$$-8, -7, -6, -5, -4, -3, -2, -1$$

13.

List all integers that satisfy the inequality $\frac{3}{2} < x < 6$.

$$1\frac{1}{2} < x < 6$$

$$2, 3, 4, 5$$

14.

List all integers that satisfy the inequality $-1 \leq x < \frac{10}{3}$.

$$-1 \leq x < 3\frac{1}{3}$$

$$-1, 0, 1, 2, 3$$

15.

List all integers that satisfy the inequality $\frac{2}{5} < x < \frac{13}{4}$.

1, 2, 3

$3\frac{1}{4}$

16.

List all integers that satisfy the inequality $\frac{11}{3} < x < \frac{50}{7}$.

4, 5, 6, 7

$3\frac{2}{3} < x < 7\frac{1}{7}$

17.

Solve the inequality $3x - 2 < 13$.

$$\begin{array}{r} +2 \qquad \qquad +2 \\ 3x < 15 \\ \div 3 \qquad \qquad \div 3 \\ x < 5 \end{array}$$

18.

Solve the inequality $5x + 11 \geq 46$.

$$\begin{array}{r} -11 \qquad \qquad -11 \\ 5x \geq 35 \\ \div 5 \qquad \qquad \div 5 \\ x \geq 7 \end{array}$$

19.

Solve the inequality $7x + 20 > 6$.

$$\begin{array}{r} -20 \qquad \qquad -20 \\ 7x > -14 \\ \div 7 \qquad \qquad \div 7 \\ x > -2 \end{array}$$

20.

Solve the inequality $14 - 3x \leq 2$.

$$\begin{array}{r} +3x \qquad \qquad +3x \\ 14 \leq 2 + 3x \\ -2 \qquad \qquad -2 \\ 12 \leq 3x \\ \div 3 \qquad \qquad \div 3 \\ 4 \leq x \end{array}$$

21.

Solve the inequality $21 - 2x \geq -1$.

$$\begin{array}{r} +2x \qquad \qquad +2x \\ 21 \geq 2x - 1 \\ +1 \qquad \qquad \qquad +1 \\ \hline 22 \geq 2x \\ \div 2 \qquad \qquad \div 2 \\ \hline 11 \geq x \end{array}$$

22.

Solve the inequality $9x - 40 < 14$

$$\begin{array}{r} +40 \qquad \qquad +40 \\ 9x < 54 \\ \div 9 \qquad \qquad \div 9 \\ \hline x < 6 \end{array}$$

23.

Solve the inequality $13 - 6x \leq 49$

$$\begin{array}{r} +6x \qquad \qquad +6x \\ 13 \leq 6x + 49 \\ -49 \qquad \qquad \qquad -49 \\ \hline -36 \leq 6x \\ \div 6 \qquad \qquad \div 6 \\ \hline -6 \leq x \end{array}$$

24.

Solve the inequality $7x + 18 \leq 5x + 32$.

$$\begin{array}{r} -5x \qquad \qquad -5x \\ 2x + 18 \leq 32 \\ -18 \qquad \qquad \qquad -18 \\ \hline 2x \leq 14 \\ \div 2 \qquad \qquad \div 2 \\ \hline x \leq 7 \end{array}$$

25.

Solve the inequality $15x - 31 > 8x - 10$.

$$\begin{array}{r} -8x \qquad \qquad -8x \\ 7x - 31 > -10 \\ +31 \qquad \qquad \qquad +31 \\ \hline 7x > 21 \\ \div 7 \qquad \qquad \div 7 \\ \hline x > 3 \end{array}$$

26.

List all integers that satisfy both the inequalities $4x > -12$ and $x + 3 \leq 7$.

$$\begin{array}{r} 4x > -12 \\ -4 \quad -4 \\ x > -3 \end{array}$$

$$\begin{array}{r} x + 3 \leq 7 \\ -3 \quad -3 \\ x \leq 4 \end{array}$$

$-2, -1, 0, 1, 2, 3, 4$

27.

List all integers that satisfy both the inequalities $7x - 3 \geq 18$ and $9x + 7 < 70$.

$$\begin{array}{r} 7x - 3 \geq 18 \\ +3 \quad +3 \\ 7x \geq 21 \\ \div 7 \quad \div 7 \\ x \geq 3 \end{array}$$

$$\begin{array}{r} 9x + 7 < 70 \\ -7 \quad -7 \\ 9x < 63 \\ \div 9 \quad \div 9 \\ x < 7 \end{array}$$

$3, 4, 5, 6$

28.

List all integers that satisfy both the inequalities $4x + 21 < 44$ and $3x - 10 > -16$.

$$\begin{array}{r} 4x + 21 < 44 \\ -21 \quad -21 \\ 4x < 23 \\ \div 4 \quad \div 4 \\ x < 23/4 \\ x < 5 \frac{3}{4} \end{array}$$

$$\begin{array}{r} 3x - 10 > -16 \\ +10 \quad +10 \\ 3x > -6 \\ \div 3 \quad \div 3 \\ x > -2 \end{array}$$

$-1, 0, 1, 2, 3, 4, 5$

29.

List all integers that satisfy the inequality $8 < 3x \leq 24$.

$$\begin{aligned} & \div 3 \qquad \div 3 \\ & 8/3 < x \leq 8 \qquad 3, 4, 5, 6, 7, 8 \\ & 2\frac{2}{3} < x \leq 8 \end{aligned}$$

30.

List all integers that satisfy the inequality $-7 < 4x < 19$.

$$\begin{aligned} & \div 4 \qquad \div 4 \\ & -7/4 < x < 19/4 \qquad -1, 0, 1, 2, 3, 4 \\ & -1\frac{3}{4} < x < 4\frac{3}{4} \end{aligned}$$

31.

List all integers that satisfy both the inequalities $5x - 22 < 2$ and $19 - 2x < 24$.

$$\begin{aligned} & 5x - 22 < 2 \\ & +22 \qquad +22 \\ & 5x < 24 \\ & \div 5 \qquad \div 5 \\ & x < 24/5 \\ & x < 4\frac{4}{5} \end{aligned}$$

$$\begin{aligned} & 19 - 2x < 24 \\ & +2x \qquad +2x \\ & 19 < 24 + 2x \\ & -24 \qquad -24 \\ & -5 < 2x \\ & \div 2 \qquad \div 2 \\ & -2.5 < x \end{aligned}$$

$$-2, -1, 0, 1, 2, 3, 4$$

32.

List all integers that satisfy both the inequalities $9x - 16 \geq 4x + 9$ and $91 - 7x > 19$.

$$\begin{aligned} & 9x - 16 \geq 4x + 9 \\ & -4x \qquad -4x \\ & 5x - 16 \geq 9 \\ & +16 \qquad +16 \\ & 5x \geq 25 \\ & \div 5 \qquad \div 5 \\ & x \geq 5 \end{aligned}$$

$$\begin{aligned} & 91 - 7x > 19 \\ & +7x \qquad +7x \\ & 91 > 7x + 19 \\ & -19 \qquad -19 \\ & 72 > 7x \\ & \div 7 \qquad \div 7 \\ & 10\frac{2}{7} > x \\ & 10\frac{2}{7} > x \end{aligned}$$

$$5, 6, 7, 8, 9, 10$$