

Unit 4: Linear Relations & Functions
4.0 Inequalities Review

Inequality – A mathematical statement comparing expressions that may not be equal

Inequality Symbols:

$<$
 $>$
 $\leq$
 $\geq$
 $\neq$

We can express inequalities:

- 1) Verbally/written
- 2) Algebraically (with an inequality sign)
- 3) Visually/graphically (on a number line)

Ex. Show each statement graphically and algebraically:

- a) All numbers equal to at most -1 .
- b) You must be at least 16 years old to get a driver's license.

Ex. State each inequality shown in words and algebraically:



Combination (compound) Inequalities

Ex. The average temperature fluctuates from a low of -18°C to a high of 21°C .

Ex. $0 \leq x < 5$

Consider the inequality $-3 < 6$. How do mathematical operations $[+, -, \times, \div]$ affect the inequality?

$$-3 < 6$$

$$-3 < 6$$

$$-3 < 6$$

$$-3 < 6$$

$$-3 < 6$$

$$-3 < 6$$

Conclusion:

Ex. Solve, show solution algebraically and graphically:

a) $x - 3 \geq 2$

b) $-2x < 8$

c) $-5 > \frac{x}{3}$

d) $4x + 2 \leq 10$

e) $\frac{x}{-3} - 20 < -24$

f) $5 - x > 8$

g) $\frac{x}{4} + 3 > 8$

h) $-2(x + 3) \leq 10x + 18$