

Find integers that solve an inequality

$x > 2$ means x is greater than 2.

$x \geq 1$ means that is greater than or equal to 1.

$x < 3$ means x is less than 3.

$x \leq 6$ means that x is less than or equal to 6.

State the integers that satisfy $2 < x \leq 6$

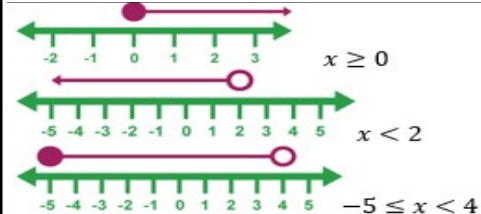
3,4,5,6

Inequalities on a number line

Inequalities can be shown on a number line.

Open circles are used for numbers that are less than or greater than.

Closed circles are used for numbers that are less than or equal or greater than or equal.



Solve linear inequalities

Treat the inequality like an equals symbol and solve it like an equations.

(Remember to write the inequality symbol in your method and answer instead of an =)

Eg. Solve $2x + 5 > 11$

(subtract 5 from both sides)

$$2x > 6$$

(divide both sides by 2)

$$x > 3$$



Year 9 foundation topic 5

Equations, inequalities and sequences

What careers would use these skills?

Maximising profit in business, engineers set up and solve equations, electricians rearrange formulae to calculate power, current and voltage.

Rearrange formula

Use inverse operations on both sides of the formula (balancing method) until you find the expression for the letter.

Eg. Make x the subject of $y = \frac{2x-1}{z}$

Multiply both sides by z

$$yz = 2x - 1$$

Add 1 to both sides

$$yz + 1 = 2x$$

Divide by 2 on both sides

$$\frac{yz + 1}{2} = x$$

We now have x as the subject.

Nth term of a linear sequence

A rule which allows you to calculate the term that is in the n th position of the sequence. Also known as the 'position-to-term' rule.

(n refers to the position of a term in a sequence)

1. Find the difference.

2. Multiply that by n .

3. Substitute $n=1$ to find out what to add or subtract to get the first number of the sequence.

Solving one step equations

Use inverse operations on both sides of the equation (balancing method) until you find the value for the letter.

Eg. Solve $x + 2 = 5$

(Subtract 2 from both sides)

$$\text{So } x = 3$$

Solve two step equations

Eg. Solve $2x - 3 = 7$

(add 3 to both sides)

$$2x = 10$$

(divide by 2 on both sides)

$$\text{So } x = 5$$

Solve equations with brackets

Eg. Solve $5(x - 3) = 25$

(expand the bracket)

$$5x - 15 = 25$$

(add 15 to both sides)

$$5x = 40$$

(divide by 5)

$$x = 8$$

Solve equations with an unknown on both sides

Eg. Solve $3x + 5 = x + 11$

(take the x 's to the side with the most, remember to do the inverse operation)

$$2x + 5 = 11$$

(subtract 5 from both sides)

$$2x = 6$$

(divide by 2)

$$\text{So } x = 3$$