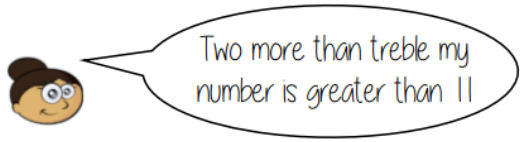
Form and solve inequalities R



Form

x → x3 → +2 → 11

$3x + 2 > 11$

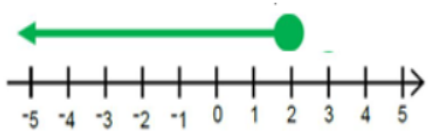
Solve

x ← -3 ← -2 ← 11

$x > 3$

Inequalities: unknown on both sides

$8x + 5 \leq 4x + 13$ → $x \leq 2$

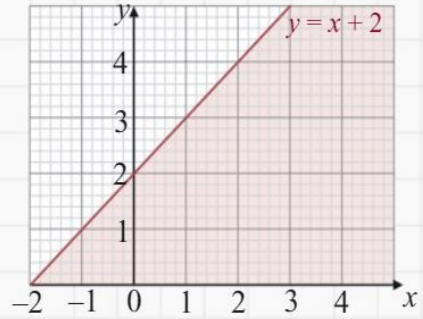


Any value 2 or less will satisfy this inequality

Example 1 Graphing Inequalities

On a graph, shade the region that satisfies the inequality $y \leq x + 2$.

1. Draw the line $y = x + 2$. When graphing inequalities, use a solid line for ≤ or ≥ and a dashed line for < or >.
2. Find which region to shade by testing the coordinates of any point not on the line and seeing if they satisfy the inequality. E.g. the point (0, 0) satisfies the inequality because $0 \leq 0 + 2$, so shade the region which includes (0, 0) — below the line.



Example 2 Regions

On a graph, shade the region that satisfies the inequalities $y < x$, $x < 3$ and $y \geq 4 - x$.

1. Draw the lines $y = x$, $x = 3$ and $y = 4 - x$ on the same graph.
2. The region that satisfies all three inequalities is below $y = x$, to the left of $x = 3$ and on and above $y = 4 - x$.