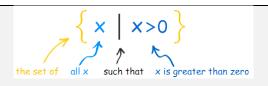
Topic: Inequalities

Topic/Skill	Definition/Tips	Example
1. Inequality	An inequality says that two values are not	7 ≠ 3
	equal.	
		$x \neq 0$
2 Inaquality	$a \neq b$ means that a is not equal to b.	State the integers that satisfy
2. Inequality symbols	x > 2 means x is greater than 2 x < 3 means x is less than 3	State the integers that satisfy $-2 < x \le 4$.
Symbols	$x \ge 1$ means x is greater than or equal to	2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	1	-1, 0, 1, 2, 3, 4
	$x \le 6$ means x is less than or equal to 6	
3. Inequalities	Inequalities can be shown on a number line.	
on a Number		-2 -1 0 1 2 3 $x \ge 0$
Line	Open circles are used for numbers that are	→ · · · · · · · · · · · · · · · · · · ·
	less than or greater than $(< or >)$	• • • • • • • • • • • • • • • • • • • •
	Closed circles are used for numbers that	-5 -4 -3 -2 -1 0 1 2 3 4 5 x < 2
	are less than or equal or greater than or	
	equal $(\leq or \geq)$	$-5 -4 -3 -2 -1 0 1 2 3 4 5 -5 \le x < 4$
4. Graphical	Inequalities can be represented on a	Shade the region that satisfies:
Inequalities	coordinate grid.	$y > 2x, x > 1 \text{ and } y \le 3$
	If the inequality is strict $(x > 2)$ then use a	
	If the inequality is strict $(x > 2)$ then use a dotted line .	y = 2x
	If the inequality is not strict ($x \le 6$) then	4 /
	use a solid line .	y = 3
	Shade the region which satisfies all the	2
	inequalities.	x = 1
		/
		9 2 4
5. Quadratic	Sketch the quadratic graph of the	Solve the inequality $x^2 - x - 12 < 0$
Inequalities	inequality.	
_	- '	Sketch the quadratic:
	If the expression is $> or \ge$ then the answer	
	will be above the x-axis.	-3\4
	If the expression is $< or \le$ then the answer will be below the x-axis .	
	will be below the x-axis.	- 70
	Look carefully at the inequality symbol in	1
	the question.	The required region is below the x-axis,
		so the final answer is:
	Look carefully if the quadratic is a positive	-3 < x < 4
	or negative parabola.	76.1
		If the question had been > 0, the answer would have been:
		answer would have been: $x < -3 \text{ or } x > 4$
6. Set Notation	A set is a collection of things , usually	$\{3, 6, 9\}$ is a set.
27.201100000000	numbers, denoted with brackets { }	(2, 2, 7) 20 8 000

 $\{x \mid x \ge 7\}$ means 'the set of all x's, such that x is greater than or equal to 7'

The 'x' can be replaced by any letter.

Some people use ':' instead of '|'



 ${x: -2 \le x < 5}$