CHAPTER 2 EM Simultaneous Linear Inequalities

1) When to flip sign?

a) Divide or multiply by negative no.

eg. $-x > 7$

$\frac{3}{8} < \frac{4-x}{-5}$

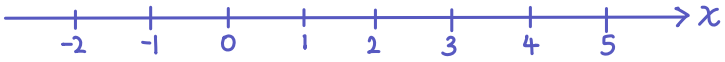
b) Swap positions of LHS and RHS

eg. $7 \geqslant x$

2) Solving simultaneous inequality

eg. Solve the inequalities $-\frac{11}{5} < \frac{7-3x}{3} \leqslant 4$. Represent your solution on a number line.

This is the working number line to find your solution, which is the overlapping part. You can choose not to draw this.



← Number line to represent your solution.

eg. Solve the inequalities $x+2 \geqslant \frac{x}{2} > 3$. Represent your solution on a number line.

eg. Solve the inequalities $x - 1 > \frac{x}{2} \geqslant x + 2$.

3) Finding largest / smallest values from the given simultaneous inequalities.

eg. Given that x and y are integers where $-5 \leq x \leq 4$ and $-3 \leq y < 3$, find

a) the greatest possible value of $x - y$.

TIP

You only need to use the maximum, minimum and zero of each variable.

For x :

For y :

.....

b) the smallest possible value of xy.

.....

c) the smallest possible value of $x^2 + y^2$

note : squaring a positive or negative number always result in a _____ answer.

.....

d) the largest possible value of $x^2 + y^2$