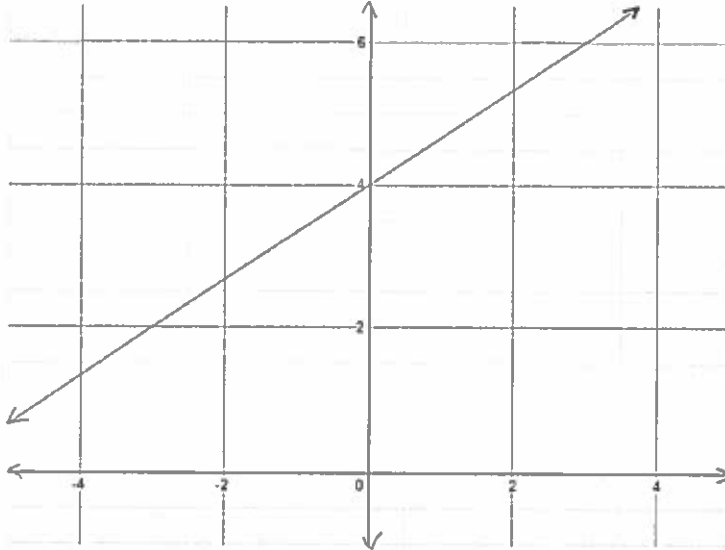


Linear Inequalities in Two Variables

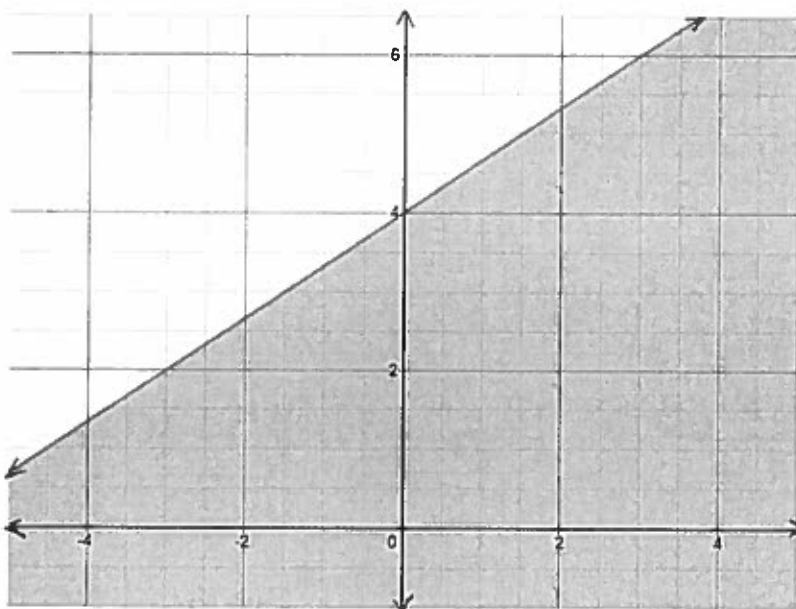
Ex 1.

Graph $y \leq \frac{2}{3}x + 4$

- We know that $y < \frac{2}{3}x + 4$ or $y = \frac{2}{3}x + 4$
- Graph for $y = \frac{2}{3}x + 4$



- Any point on this line is a valid solution for $y = \frac{2}{3}x + 4$, all points on the line will satisfy $y = \frac{2}{3}x + 4$
- However for $y < \frac{2}{3}x + 4$ to be true the points have to be below the line
- The solution to $y \leq \frac{2}{3}x + 4$ is: The line and the shaded region below the line

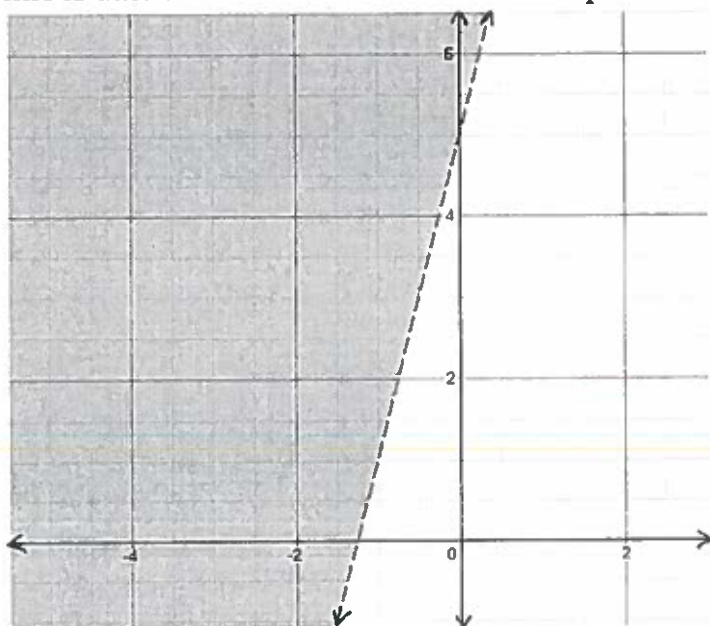


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Ex 2.

Graph $y > 4x + 5$

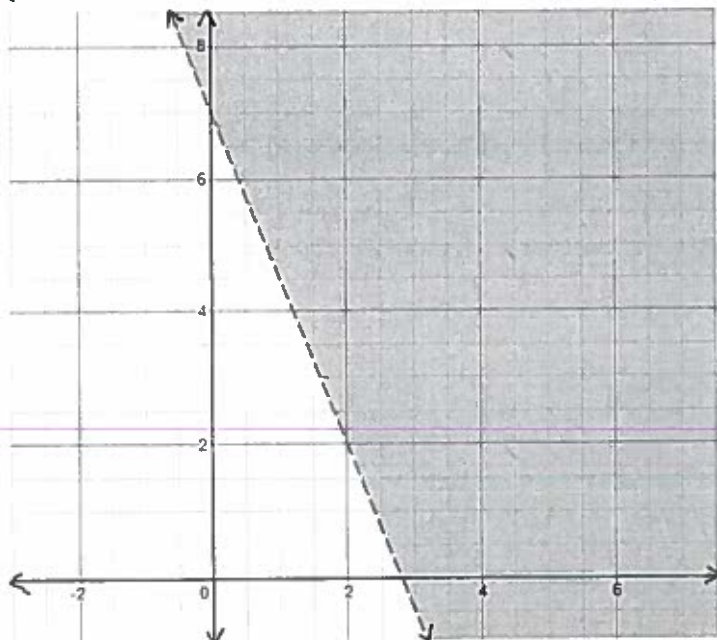
- We know that the region above the line will be the solution since y is "greater"
- However there is no "equal to" part to this inequality therefore the line itself is NOT part of the solution
- The solution to $y > 4x + 5$ is: The shaded region above the line (the line is dashed to demonstrate that it is not part of the solution)



Ex 3.

Graph $y > -\frac{5}{2}x + 7$

- We know that the region is going to be above the line
- There is no "equal to" so the line will be dashed
- The solution to $y > -\frac{5}{2}x + 7$ is: The shaded region above the line (the line is dashed to demonstrate that it is not part of the solution)



Ex 4.

Graph $y \leq -8x + 5$

- We know that the region is going to be below the line
- y could also be equal to so the line will be included in the solution

