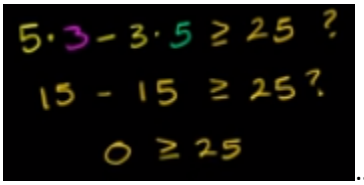
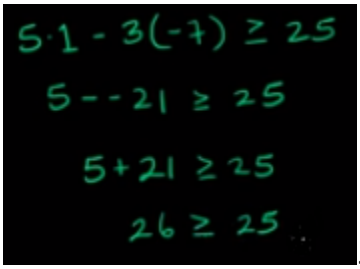
Determine whether the ordered pairs (3, 5) and (1, -7) are solutions to the inequality $5x - 3y \geq 25$.

Let's try the first ordered pair (3, 5):



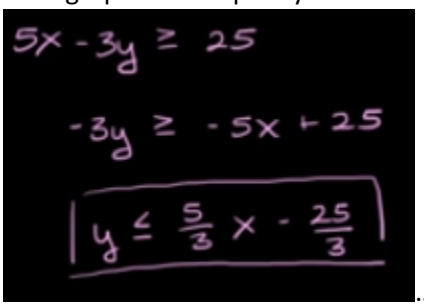
… this is not true; 0 is not greater than or equal to 25.

Let's try the other ordered pair (1, -7):



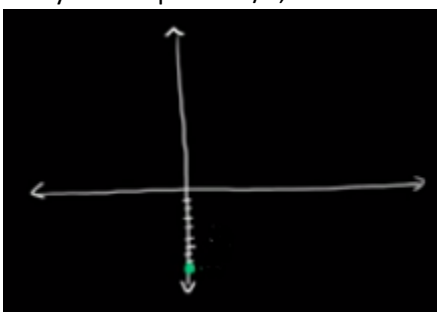
… this is true; 26 is greater than or equal to 25.

Let's graph the inequality:

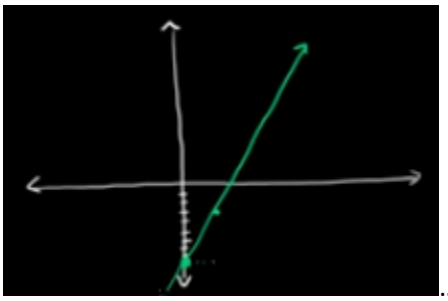


… notice that when we divide both sides of an inequality by a negative number (in this case, negative 3), we also invert the greater than or equal to sign to face the other side.

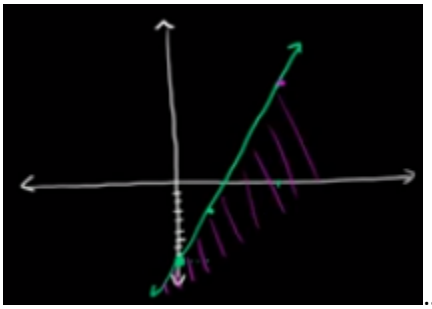
The y intercept is -25/3, which is the same as negative 8 and 1/3:



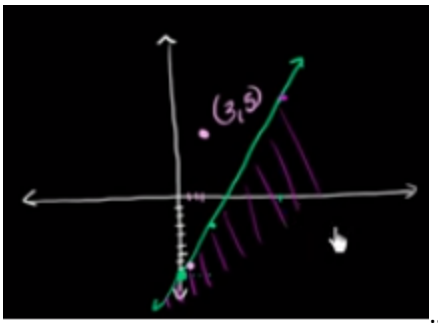
The slop is 5/3. This means that for every 3 units to the right, it moves upward of 5 units.

 … this graph is if y was **equal** to 5/3x minus 25/3. The solution is any y value directly on the line. These y values satisfy the inequality.

If the graph is y is **less tha**n 5/3x minus 25/3:

 … the solution is on the line, as well as the shaded purple area. These are the y values that satisfy the inequality.

When we plot the original ordered pairs:



… we see that (3,5) is outside the solution area, whereas (1,-7) is within the solution area.