Two- variable inequalities

Science, Mathematics

Two-Variable Inequality Problem ment -- Shipping Restrictions. The accompanying graph shows all of the possibilities for the number of refrigerators and the number of TVs that will fit into an 18-wheeler.

Solution

(a) To be able to write a linear inequality describing the region shown, consider the corner points (0, 330) and (110, 0) and use these points to come up with a linear equation. Since slope must be determined first, then slope would be (0 - 330) / (110 - 0) which equals -3. Through the point-slope formula, the value of the slope as well as the coordinates of one of the points (0, 330) may be plugged into y - y1 = m(x - x1) to give y - 330 = -3(x - 0) which in the form y = mx + b becomes y = -3x + 330. Then to test which ' inequality' applies, a random test point as (0, 0) can be used to substitute into the linear equation obtained so that 0 on the left side is set unequal to -3*(0) + 330 or 330 on the right side. Between 0 and 330, 330 is obviously greater in value, thus, the linear inequality should be y ≤ -3x + 330 where '≤' and not '