Math 70: Exam 1

Simplify the following expressions as much as possible:

(1) $\sqrt{8x^2}$

(2) $\sqrt{48x^4z}$

(3) $(16x^4)^{1/4}$

(4) $(\sqrt[3]{x^2})^6$

(5) $\sqrt{44}$

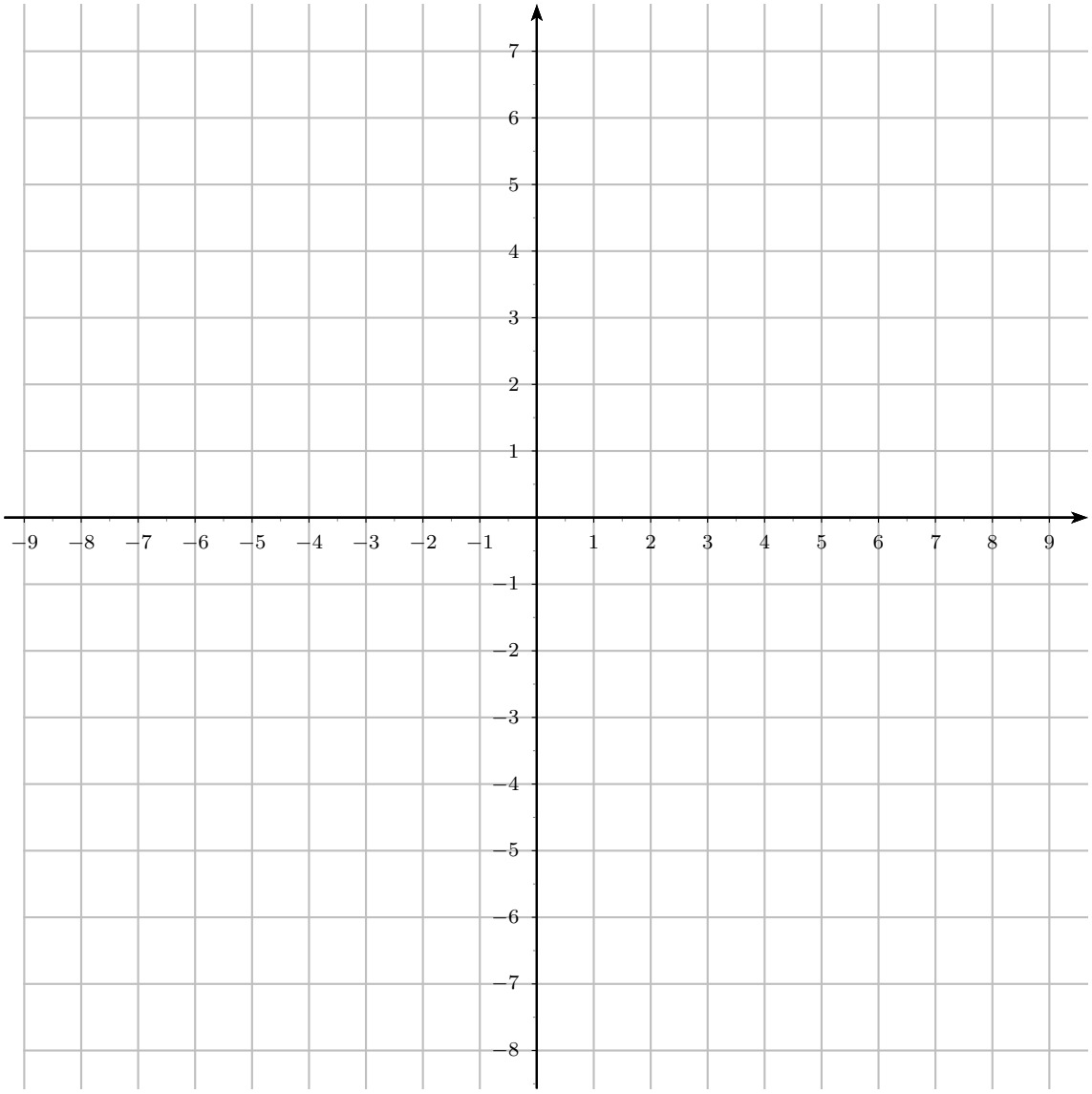
(6) $\frac{2.5\times10^5}{5\times10^3}$

(7) $10^3 \cdot 10^7$

(8) $10^5 \cdot 10^{-8}$

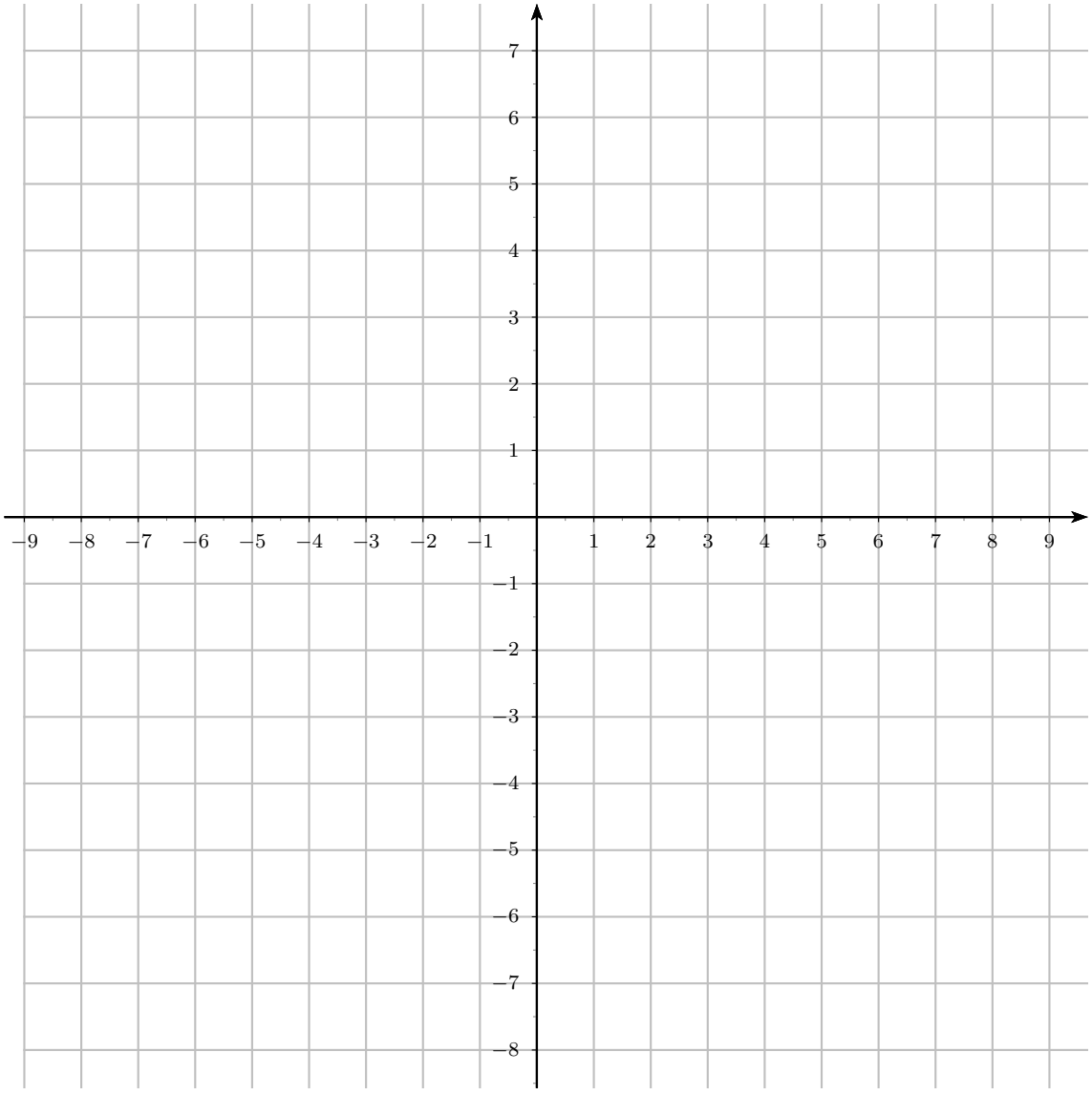
Graph the following inequality :

$$2x + 3y \geq -6$$



Graph the following inequalities on a single graph, and find the vertices of the resulting region.

$$\begin{cases} 3x + 4y & \leq 12 \\ 2y & \geq 3x \\ x & \geq 0 \end{cases}$$

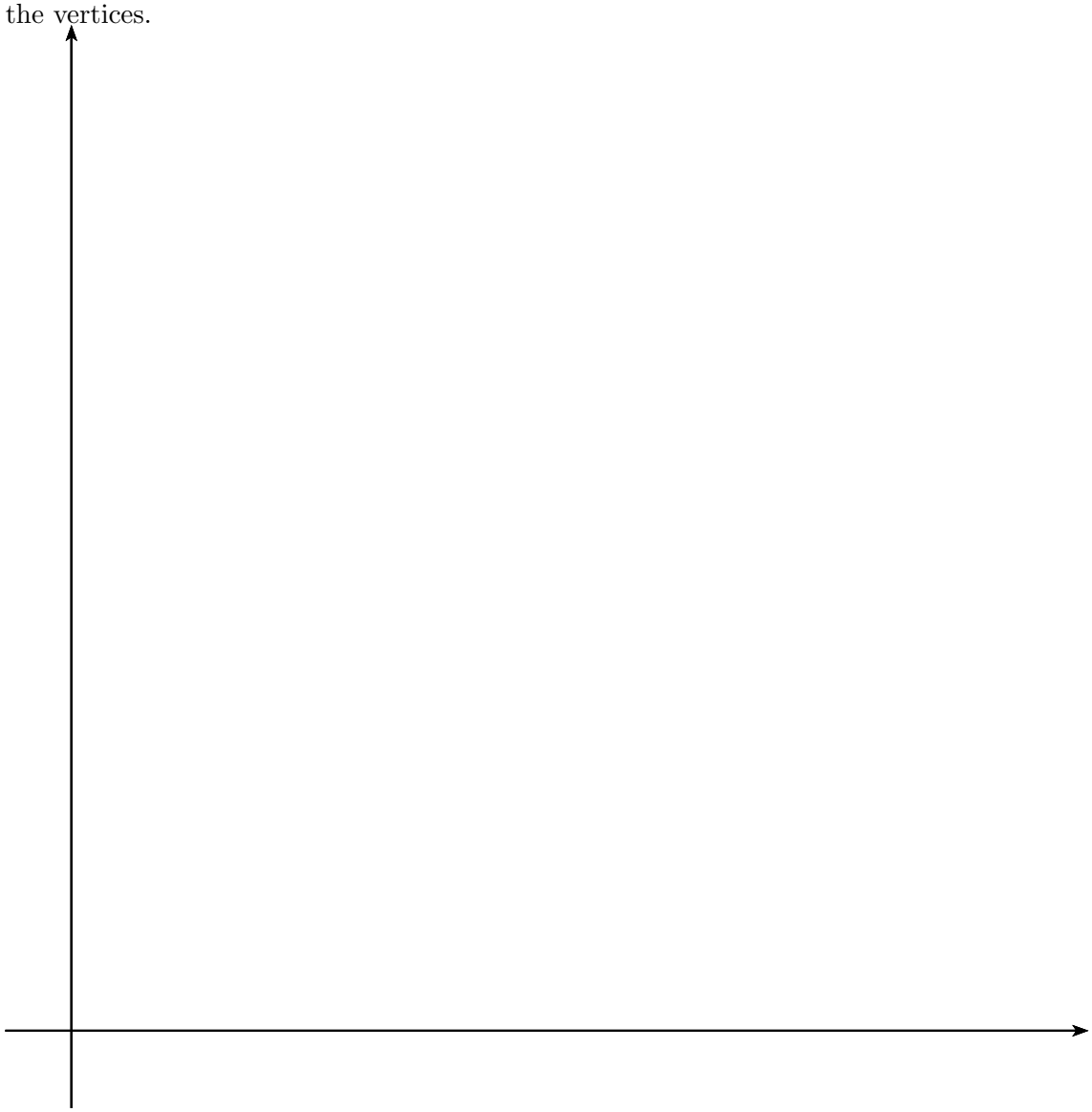


4

You are sent to the market to purchase flour for a bakery for the week. Storage at the baker can handle at most 200 more lbs. of flour. However there are two kinds of flour you can buy: white and whole wheat. The baker needs at least 35 lbs of whole wheat flour this week, and at least 100 lbs. of white flour.

a *Write a system of inequalities describing the above constraints using X to represent the amount of white flour you purchase, and Y to represent the amount of whole wheat flour.*

b Graph the feasible region described by those inequalities and label the coordinates of the vertices.



c Find three points that are in the feasible region

d **Extra Credit** *If whole wheat flour costs \$0.50/lb. and white flour costs \$0.75/lb find the cheapest combination and the most expensive combination within the feasible region.*