Math 70: Exam 1

Simplify the following expressions as much as possible:

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

(2) $(\sqrt[3]{x})^9$

(3) $\sqrt{52x}$

(4) $\sqrt{100x^4z}$

(5) $(32x^5)^{1/5}$

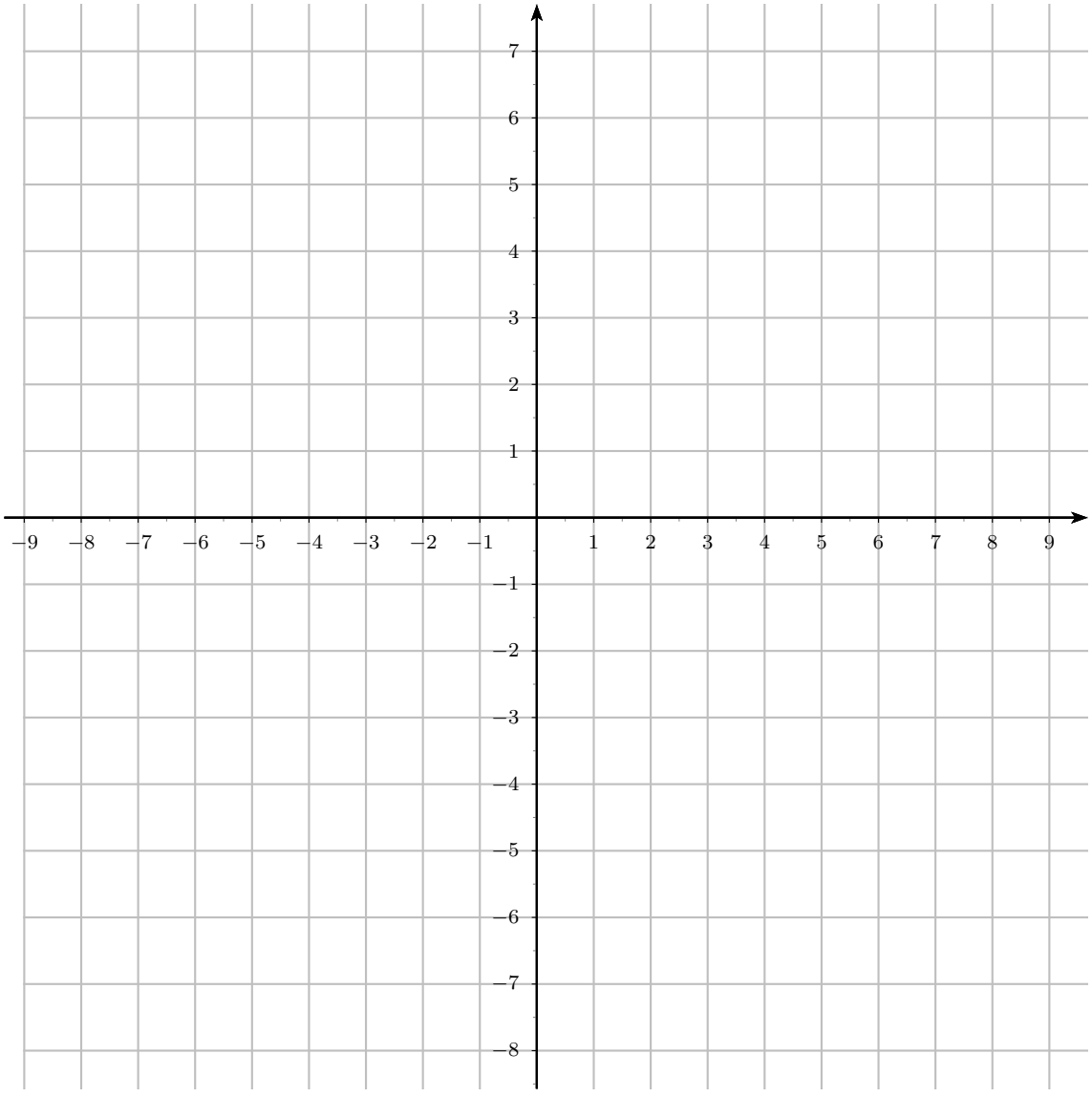
(6) $\frac{2.5\times10^4}{5\times10^8}$

(7) $10^{-9}\cdot10^{10}$

(8) $10^4\cdot10^5$

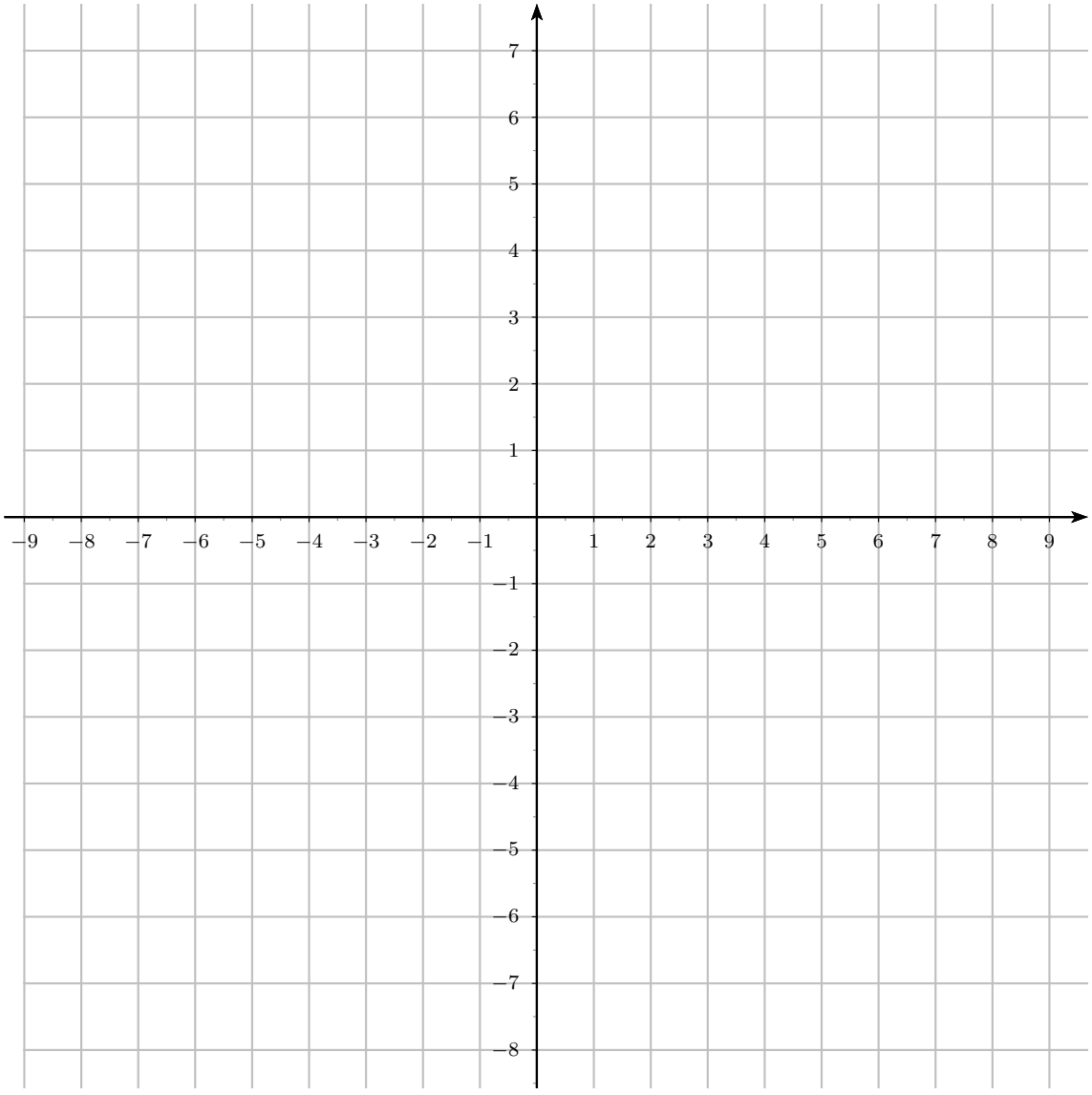
Graph the following inequality :

$$2x + 3y \leq 6$$



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

$$\begin{cases} x + 2y & \leq 4 \\ x - y & \geq 1 \\ x & \geq 0 \end{cases}$$

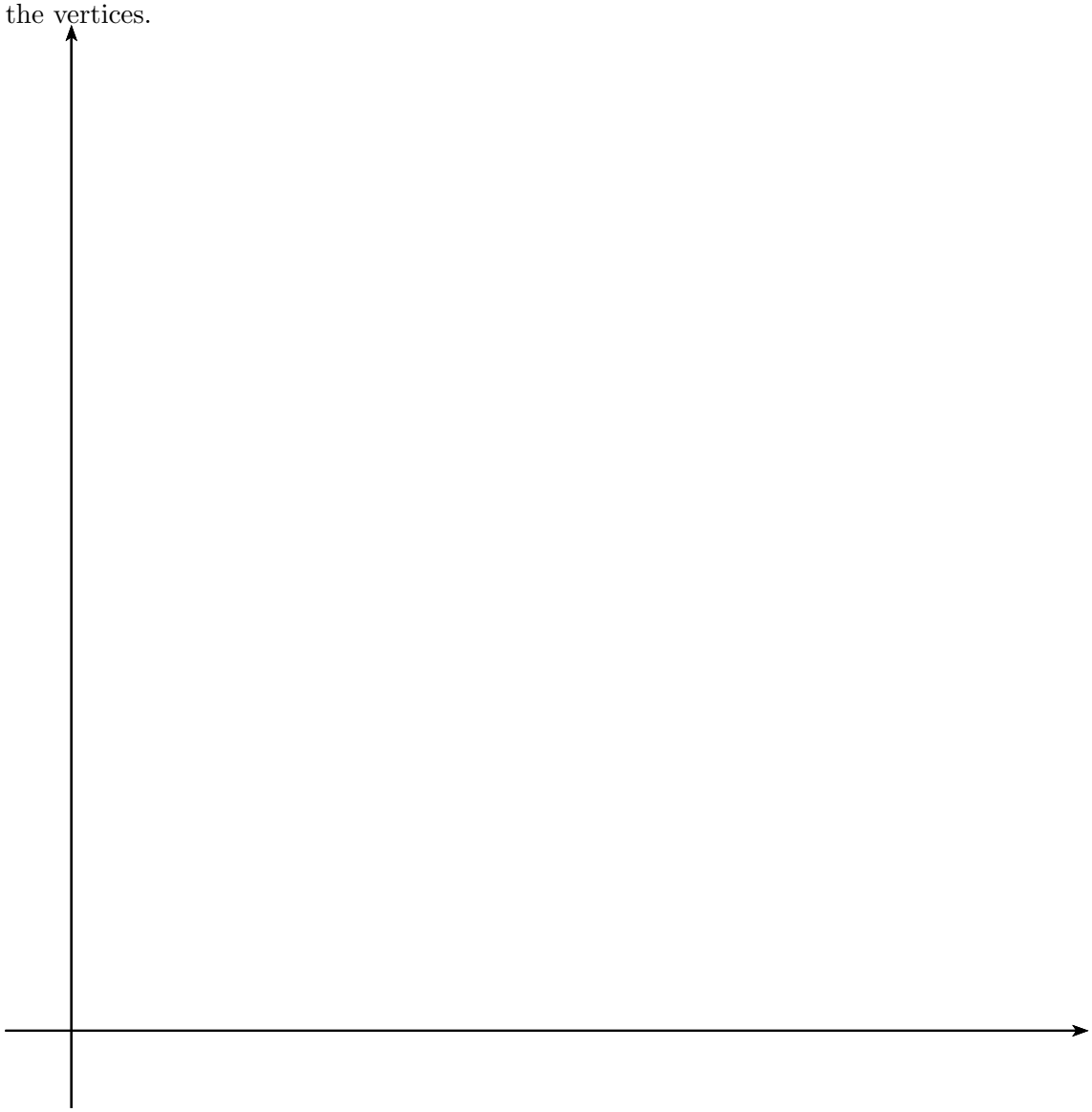


4

You are sent to the market to purchase flour for a bakery for the week. Storage at the baker can handle at most 250 more lbs. of flour. However there are two kinds of flour you can buy: white and whole wheat. The baker needs at least 75 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.*