

**Math 70: Exam 1**

Simplify the following expressions as much as possible:

(1)  $\sqrt{12x^2}$

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

(3)  $\sqrt{28x}$

(4)  $\sqrt{81x^4}$

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

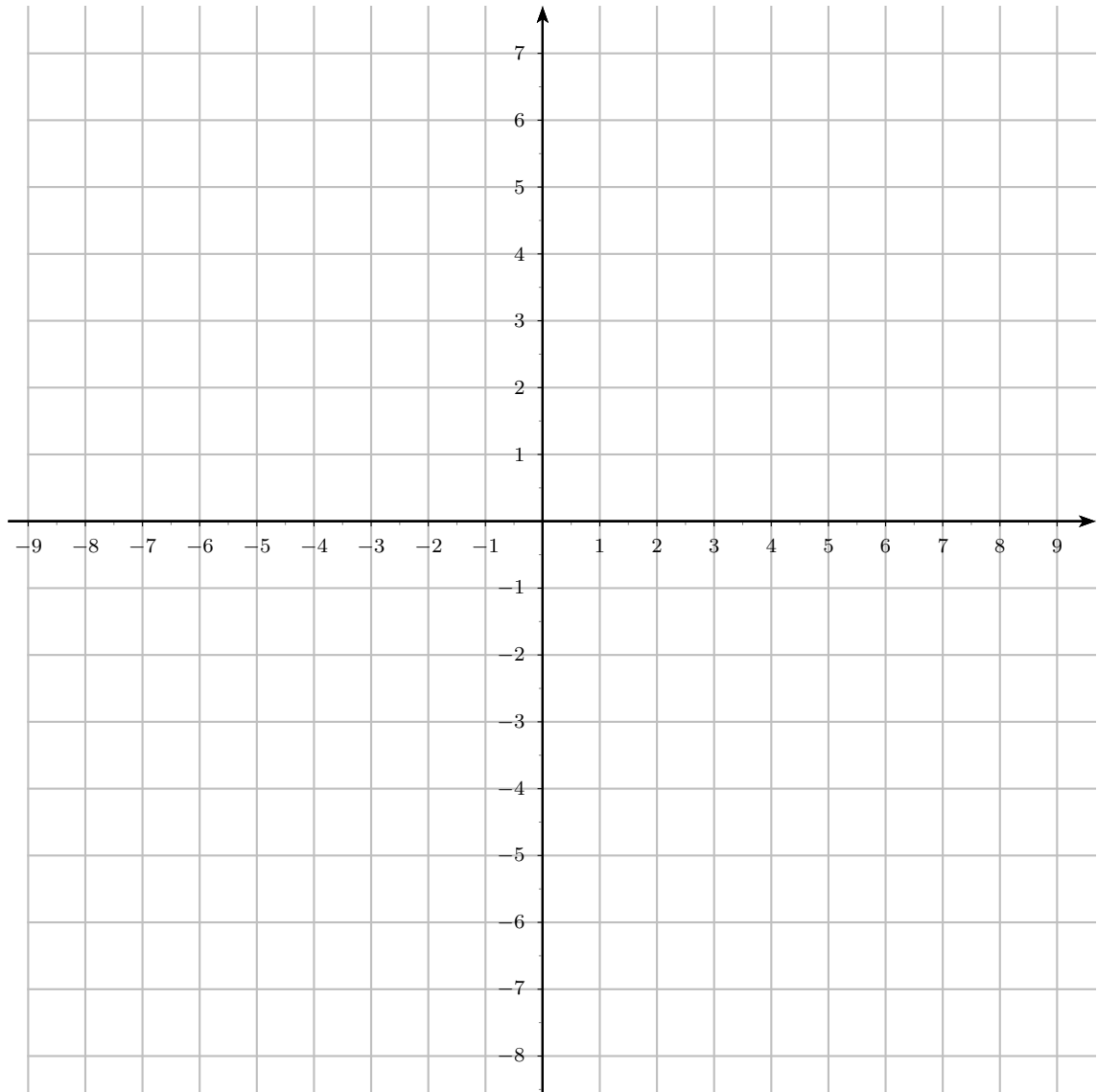
(6)  $\frac{7.5 \times 10^{10}}{5 \times 10^3}$

(7)  $10^{-9} \cdot 10^2$

(8)  $10^{12} \cdot 10^3$

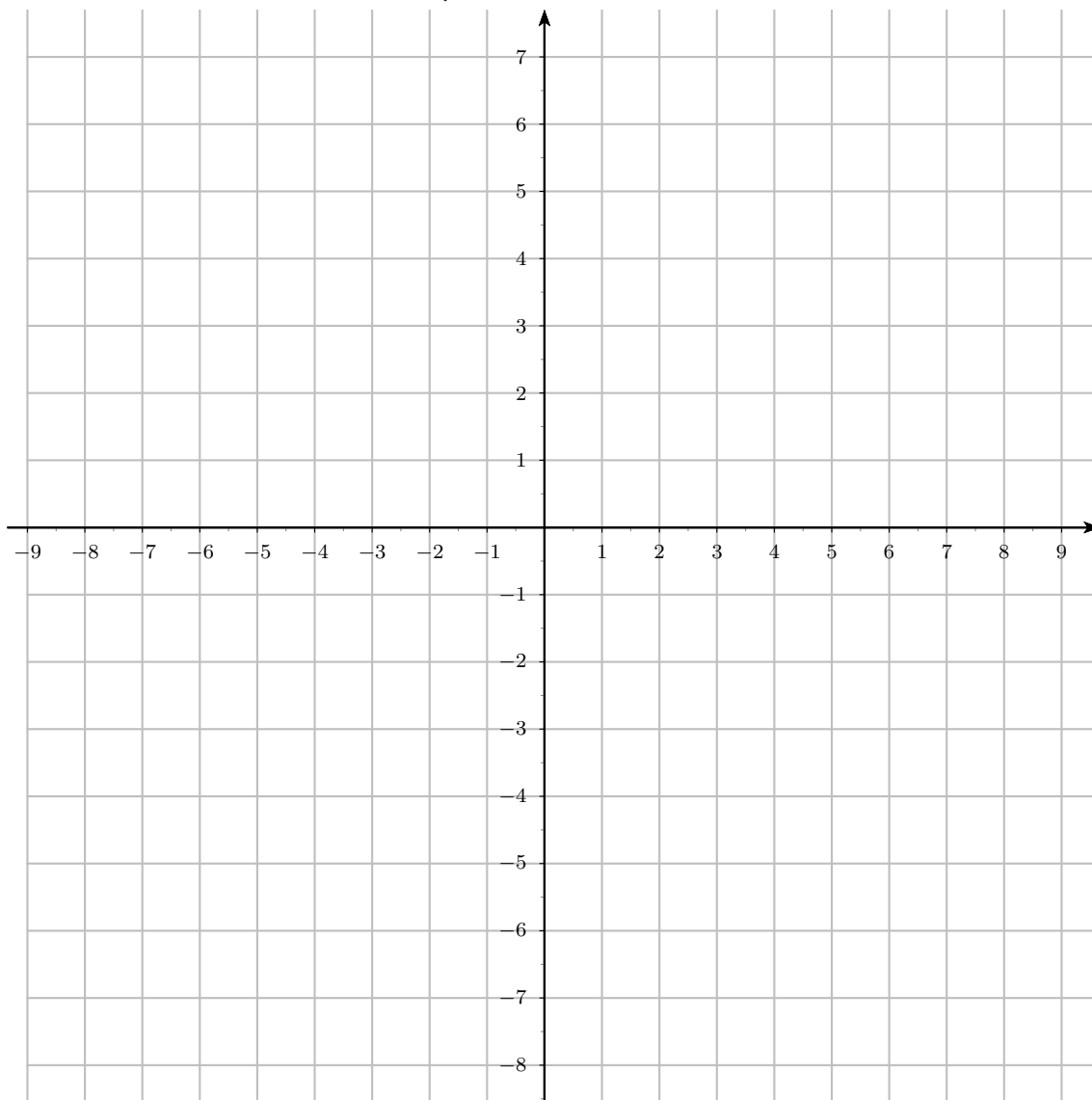
Graph the following inequality :

$$x - 4y \geq 8$$



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

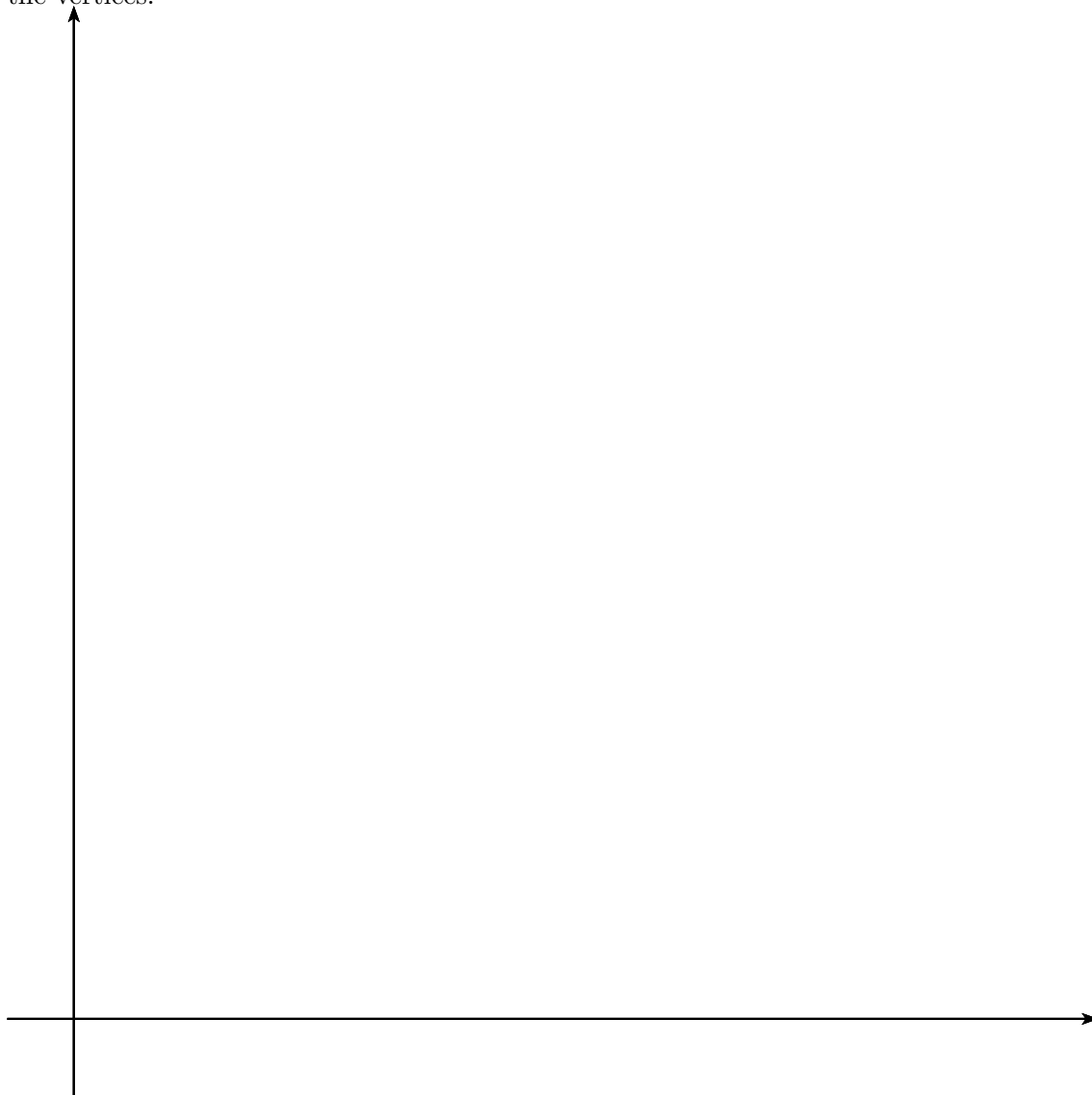
$$\begin{cases} y - 2x \leq 6 \\ 3x + y \leq 6 \\ y \geq 0 \end{cases}$$



You are sent to the market to purchase flour for a bakery for the week. Storage at the baker can handle at most 300 more lbs. of flour. However there are two kinds of flour you can buy: white and whole wheat. The baker needs at least 145 lbs of whole wheat flour this week, and at least 175 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.*