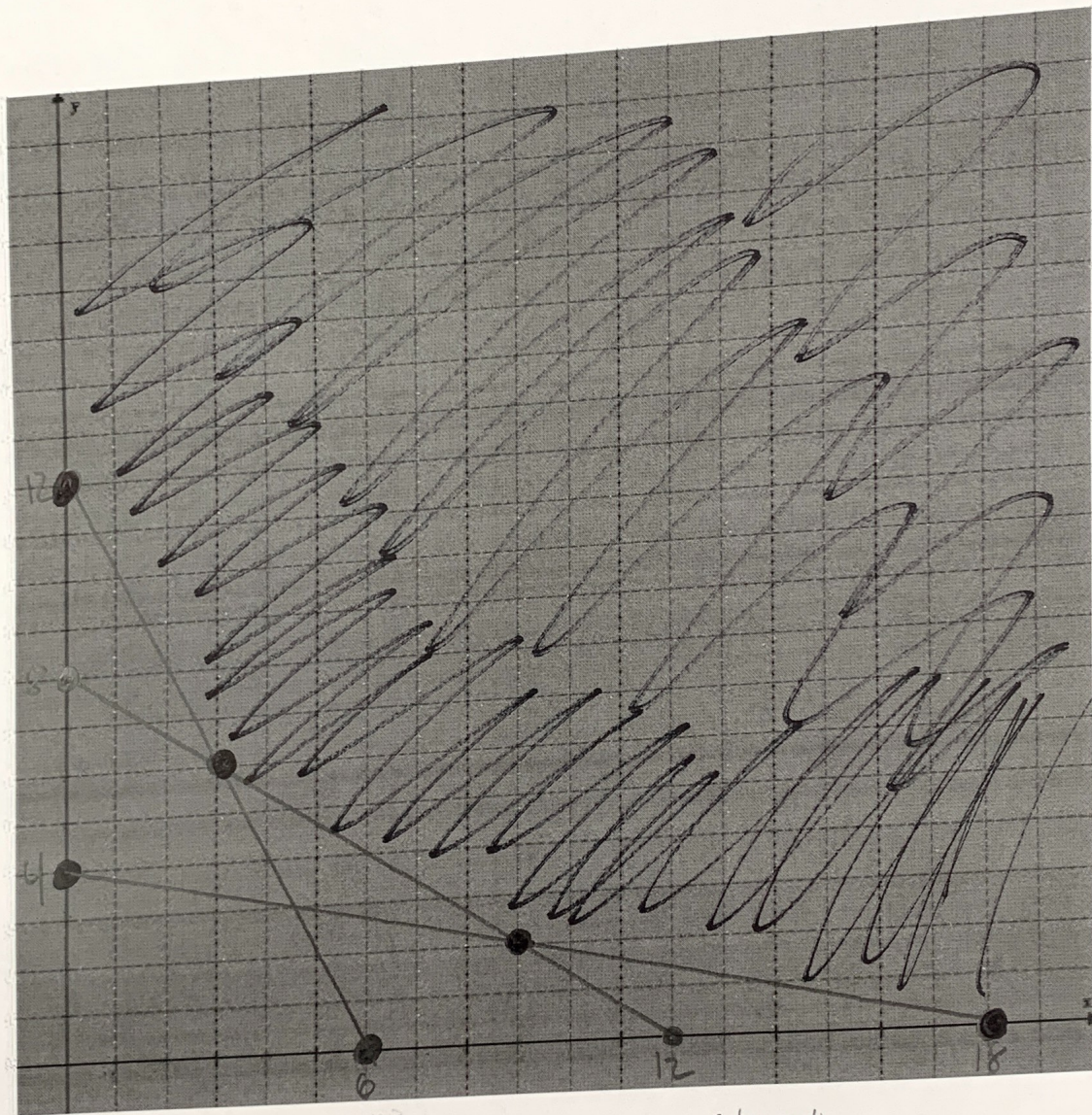


5. A farming cooperative mixes two brands of cattle feed. Brand X costs \$25 per bag and contains two units of nutritional element A, <sup>two</sup> units of element B, and two units of element C. Brand Y costs \$20 per and contains one unit of nutritional element A, nine units of element B, and three units of element C. The minimum requirements of nutrients A, B, and C are 12 units, 36 units, and 24 units respectively. Find the number of bags of each brand that should be mixed to produce a mixture having a minimum cost. What is the minimum cost?



	A	B	C
X	2	2	2
Y	1	9	3
total	12	36	24

$$\begin{aligned} 2x + y &\geq 12 \\ 2x + 9y &\geq 36 \\ 2x + 3y &\geq 24 \end{aligned}$$

$$\begin{array}{r} X/Y \\ 0/12 \\ 6/0 \end{array} \quad \begin{array}{r} X/Y \\ 0/4 \\ 18/0 \end{array} \quad \begin{array}{r} X/Y \\ 0/8 \\ 12/0 \end{array}$$

Optimization

$$C = 25x + 20y$$

Vertices of FR

$$(0, 12) = 240$$

$$(3, 6) = 195$$

$$(9, 2) = 265$$

$$(18, 0) = 450$$

Lowest cost is 3 bags of Brand X and 6 bags of Brand Y. @ \$195