1. Graph the system of equations: \[ \begin{align*}
5x - 6y &> 30 \\
4x + 3y &\geq 12
\end{align*} \] Mark the solution set with an S. Is the solution set bounded or unbounded?

2. Maximize and minimize \( C = 6x + 9y \) subject to:
   \[ \begin{align*}
2x - 4y &\geq 1 \\
-x &\leq 2y \\
2 &\leq x \leq 8
\end{align*} \]
Is the feasible region bounded or unbounded?
3. A bald cypress, which would sell for $50, needs 5 gallons of water and 10 grams of fertilizer each week. A live oak, which would sell for $80, needs 2 gallons of water and 3 grams of fertilizer each week. Each week there are 90 gallons of water and 150 grams of fertilizer available. If a local plant nursery wants to maximize their revenues while having at least two bald cypress trees available, how many of each type of tree should they grow? Discuss leftovers.
4. A large clay pot requires 85 units of clay and 5 labor-hours to produce. A small decorative clay pot requires 14 units of clay and 11 labor-hours to produce. Due to warehouse space, no more than 622 large clay pots and no more than 950 small clay pots can be produced. There are only 12,250 labor-hours and 61,200 units of clay available. If the profit a large clay pot is $32 and a small clay pot is $5, how many of each type should be produced and sold to maximize profit? Discuss leftovers.
5. An ice sculpturer creates carvings of dolphins and mermaids. For a dolphin, it takes 5 hours to freeze the water and 3 hours to carve. For a mermaid, it takes 2 hours to freeze the water and 4 hours to carve. Each week there are available 40 hours of freezing time and 48 hours of carving time. If dolphins sell for $150 each and mermaids sell for $300 each, how many of each type of ice carvings should the ice sculpturer create each week to maximize revenues? Discuss leftovers.
6. If \( x \) is the number of coyotes and \( y \) is the number of deer, maximize \( M = 10x + \frac{20}{3}y \) subject to

\[
\begin{align*}
y &\leq -x + 24 \\
2y + 3x &\leq 54 \\
y &\geq x + 2 \\
x &\geq 0 \\
4 &\leq y \leq 20
\end{align*}
\]
7. *Set up this linear programming problem, but do not solve it.*

Michaela has $800,000 available to invest in three types of investments: mutual funds, real estate, and stock. The mutual fund she is looking at has a rate of return of 4.5% per year. The real estate investment has a rate of return of 3.85% per year. The stock she is looking at has an 8.95% rate of return per year. Due to her youth, at least 65% of Michaela’s total investment is to be invested in the stock. For every $2 invested in the mutual fund, she has no more than $3 invested in real estate. How much should Michaela invest in each type to maximize her return?