Place **ANSWERS ONLY** in the boxes.

1) Maximize \( z = 4x_1 + 3x_2 \)  
Subject to  
\[
\begin{align*}
5x_1 + 3x_2 & \leq 88 \\
x_1 + 2x_2 & \leq 40 \\
x_1 & \leq 14
\end{align*}
\]

Draw and Shade the region bounded by the constraints (Shade only the region in which all constraints are true) 
**Label all corner points.**

The maximum is  
when \( x_1 = \)  and \( x_2 = \)

2) Minimize \( z = 20 - x_1 + 10x_2 \)  
Subject to  
\[
\begin{align*}
7x_1 - 9x_2 & \geq 0 \\
x_1 + 3x_2 & \geq 30 \\
2x_1 & \leq 9x_2
\end{align*}
\]

Draw and Shade the region bounded by the constraints (Shade only the region in which all constraints are true) 
**Label all corner points.**

The minimum is  
when \( x_1 = \)  and \( x_2 = \)
3) If we wanted to minimize \( z = 8x_1 - 5x_2 + 27 \), we would get the same results by maximizing \( z = \)

4) Granny’s Inc. sells two types of blankets, Comforters and Quilts. On average, each Comforter requires 5 hours of labor and 16 dollars of material, and each Quilt requires 4 hours of labor and 64 dollars of material. According to budget, no more than $2816 may be spent on material and labor is limited to at most 400 hours. The average profit is $60 per Quilt and $42 per Comforter. There are no other expenses.

The maximum profit per week is \( \)

When \( \)
and \( \)

Quilts are made

Comforters are made.