

Example

A craftsman has 150 units of wood, 90 units of glue and 150 units of paint.

(...) how many of each should be made to maximize the revenue?

x = the number of small picture frames produced

y = the number of large picture frames produced

C = the from selling picture frames (in dollars)

OBJECTIVE: Maximize $R = 175x + 400y$

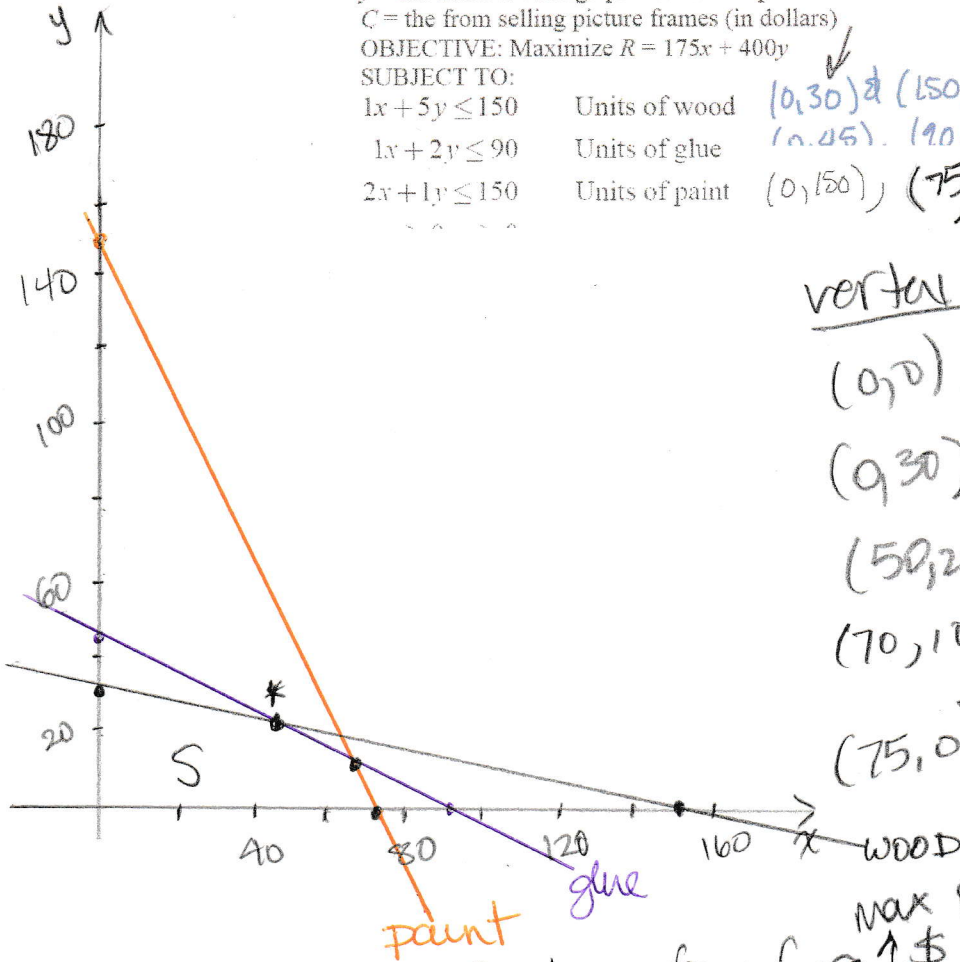
SUBJECT TO:

$1x + 5y \leq 150$ Units of wood

$1x + 2y \leq 90$ Units of glue

$2x + 1y \leq 150$ Units of paint

$(0, 30)$ & $(150, 0)$
 $(0, 45)$ & $(90, 0)$
 $(0, 150)$ & $(75, 0)$



| vertex | $R = 175x + 400y$ |
|------------|-------------------|
| $(0, 0)$ | 0 |
| $(0, 30)$ | 12000 |
| $(50, 20)$ | 16750 * |
| $(70, 10)$ | 16250 |
| $(75, 0)$ | 13,125 |

max profit of $\uparrow \$16750$.

Make 50 small & 20 large frames for a

Post Optimal

$1(50) + 5(20) = 150$ wood (none left)

$1(50) + 2(20) = 90$ glue (" ")

$2(50) + 1(20) = 120$ paint ($150 - 120 = 30$ left)

All the wood and glue are used, but 30 units of paint are left over