4. Soup Parlour has asked you to maximize profit by setting production goals for their soup mixing factory without using more than their limited supplies of chicken stock, beef stock, and vegetable stock. Their stores sell Meaty soup, Leafy soup, and Soupy soup (see table for ingredients). The three soups earn the Soup Parlour profits of $1.20, $1.30, and $1.50 per bowl, but there is limited demand for the soups: 1200, 600, and 900 bowls.

	ounces of Chicken stock	ounces of Beef stock	ounces of Vegetable stock	bowls of Demand	Profit
each bowl of Meaty	1	6	1	1200	$1.20
each bowl of Leafy	0	0	8	600	$1.30
each bowl of Soupy	3	2	2	900	$1.50
Available	3400	6800	5014		

Set up this problem below. You will do one step of its solution on #8, and read and interpret the final answer on #9.

Variables:

M = Number of bowls of Meaty soup
L = Number of bowls of Leafy soup
S = Number of bowls of Soupy soup

Constraints:

$M + 3S \le 3400$ (chicken stock supply)
$6M + 2S \le 6800$ (beef stock supply)
$M + 8L + 2S \le 5014$ (vegetable stock supply)
$M \le 1200$ (Meaty soup demand)
$L \le 600$ (Leafy soup demand)
$S \le 900$ (Soupy soup demand)
$M \ge 0, L \ge 0, S \ge 0$ (sanity)

Objective:

Maximize $P = 1.20M + 1.30L + 1.50S$

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