

Show all work.

1. **(7 points)** A fruit grower uses two brands of fertilizer. Each bag of brand A contains 8 pounds of nitrogen and 4 pounds of phosphoric acid, while each bag of brand B contains 7 pounds of nitrogen and 6 pounds of phosphoric acid. Tests indicate that the grove needs 720 pounds of nitrogen and 500 pounds of phosphoric acid. Set up a system of equations to help determine how many bags of each brand they will need, and indicate what your variables represent. *You do not need to solve the system you set up!*

2. **(6 points)** Solve the following system of equations using *substitution*:

$$\begin{cases} 2x + y = 6 \\ x - y = -3 \end{cases}$$

3. **(7 points)** Solve the following system of equations using *augmented matrix methods*:

$$\begin{cases} 3x_1 - x_2 = 2 \\ x_1 + 2x_2 = 10 \end{cases}$$