Use the following problem to answer questions 1 – 4.
The Bata Aerobics Company manufactures two models of steppers used for aerobics exercises. To manufacture each luxury model requires 20 lb of plastic and 9 min of labor. To manufacture each standard model requires 30 lb of plastic and 6 min of labor. The profit for each luxury model is $40, and the profit for each standard model is $15. If 12,600 lb of plastic and 60 hr of labor are available for the production of the steppers per day, how many steppers of each model should Bata produce in order to maximize its profits? Let x = number of Luxury Steppers and y = number of Standard Steppers.

1. Give the objective function.
   a. Min P = 20x + 9y
   b. Min P = 20x + 30y
   c. Max P = 9x + 6y
   d. Min P = 30x + 6y
   e. Max P = 40x + 15y

2. Give a constraint
   a. $20 + 9y \leq 12{,}600$
   b. $30x + 6y \leq 60$
   c. $20x + 30y \leq 12{,}600$
   d. $9x + 6y \leq 60$
   e. $9x + 6y \geq 3{,}600$

3. Find the optimal value of the objective function.
   a. $14,500
   b. $16,000
   c. $11,283
   d. $12,780
   e. $19,800

4. How many of each stepper model should they produce?
   a. 0 Luxury and 600 Standard Steppers
   b. 0 Luxury and 420 Standard Steppers
   c. 216 Luxury and 276 Standard Steppers
   d. 400 Luxury and 0 Standard Steppers
   e. 630 Luxury and 0 Standard Steppers

Use the following variables to solve problem 4 from the book.
Let x = the number of floral arrangements and y = the number of fruit baskets

5. Give the objective function
   a. $\text{Max P} = 50x + 35y$
   b. $\text{Max P} = 20x + 6y$

    c.   Min $P = 15x + 2y$
    d.   Max $P = 35x + 20y$
    e.   Min $P = 35x + 20y$

6. Give a constraint.
    a. $20x + 6y \leq 40$
    b. $20x + 15y \leq 40$
    c. $6x + 2y \leq 10$
    d. $20x + 15y \leq 2{,}400$
    e. $6x + 2y \geq 600$

7. How many of each should they sell to maximize their profit?
    a.   84 Floral Arrangements and 48 Fruit Baskets
    b.   0 Floral Arrangements and 160 Fruit Baskets
    c.   0 Floral Arrangements and 300 Fruit Baskets
    d.   100 Floral Arrangements and 0 Fruit Baskets
    e.   48 Floral Arrangements and 84 Fruit Baskets

Use the following variables to solve problem 10 from the book.
Let x = the number of Pill I and y = the number of Pill II

8. Give the objective function
    a.   Max $C = 4x + 2y$
    b.   Min $C = 3x + 250y$
    c.   Min $C = 250x + 420y$
    d.   Max $C = 250x + 420y$
    e.   Min $C = 0.10x + 0.15y$

9. Give a constraint.
    a. $4x + y \leq 200$
    b. $3x + 2y \geq 250$
    c. $4x + 3y \leq 4$
    d. $0.10x + 0.15y \leq 420$
    e. $7x + 4y \geq 420$

10. Find the optimal value of the objective function.
    a. $30
    b. $10.5
    c. $15
    d. $10
    e. $9