

# Optimization Tests Assignment 2

October 2023

## 1 Test 1

Type 1 if you want to minimize function and 2 if maximize:

2

Enter number of variables:

5

Enter number of constraint functions:

3

Enter vector of coefficients of objective function:

2 3 0 0 0

Enter a matrix of coefficients of constraint function:

1 1 1 0 0

2 1 0 1 0

1 2 0 0 1

Enter a vector of right-hand side numbers:

5 9 7

Enter the initial solution:

1 2 2 5 2

Enter the desired number of decimal places:

4

**Correct answer:**  $F_{max} = 12, x = (3, 2, 0, 1, 0)$

**Copy and paste to try this test:**

2

5

3

2 3 0 0 0

1 1 1 0 0

2 1 0 1 0

1 2 0 0 1

5 9 7

1 2 2 5 2

4

## 2 Test 2

Type 1 if you want to minimize function and 2 if maximize:

2

Enter number of variables:

6

Enter number of constraint functions:

3

Enter vector of coefficients of objective function:

10 15 8 0 0 0

Enter a matrix of coefficients of constraint function:

2 3 1 1 0 0

4 2 3 0 1 0

3 4 2 0 0 1

Enter a vector of right-hand side numbers:

120 150 180

Enter the initial solution:

10 10 20 50 30 70

Enter the desired number of decimal places:

4

**Correct answer:**  $F_{max} = 690, x = (0, 30, 30, 0, 0, 0)$

**Copy and paste to try this test:**

2

6

3

10 15 8 0 0 0

2 3 1 1 0 0

4 2 3 0 1 0

3 4 2 0 0 1

120 150 180

10 10 20 50 30 70

4

## 3 Test 3

Type 1 if you want to minimize function and 2 if maximize:

2

Enter number of variables:

6

Enter number of constraint functions:

3

Enter vector of coefficients of objective function:

2 3 0 -1 0 0

Enter a matrix of coefficients of constraint function:

2 -1 0 -2 1 0

3 2 1 -3 0 0

-1 3 0 4 0 1

Enter a vector of right-hand side numbers:

16 18 24

Enter the initial solution:

5 1 4 1 9 22

Enter the desired number of decimal places:

4

**Correct answer:**  $F_{max} = 6, x = (0, 2, 4, 0)$

**Copy and paste to try this test:**

2

6

3

2 3 0 -1 0 0

2 -1 0 -2 1 0

3 2 1 -3 0 0

-1 3 0 4 0 1

16 18 24

5 1 4 1 9 22

4

## 4 Test 4

Type 1 if you want to minimize function and 2 if maximize:

2

Enter number of variables:

6

Enter number of constraint functions:

3

Enter vector of coefficients of objective function:

9 10 16 0 0 0

Enter a matrix of coefficients of constraint function:

18 15 12 1 0 0

6 4 8 0 1 0

5 3 3 0 0 1

Enter a vector of right-hand side numbers:

360 192 180

Enter the initial solution:

10 2 10 30 44 94

Enter the desired number of decimal places:

4

**Correct answer:**  $F_{max} = 400, x = (0, 8, 20, 0, 0, 96)$

**Copy and paste to try this test:**

2  
6  
3  
9 10 16 0 0 0  
18 15 12 1 0 0  
6 4 8 0 1 0  
5 3 3 0 0 1  
360 192 180  
10 2 10 30 44 94  
4

## 5 Test 5

Type 1 if you want to minimize function and 2 if maximize:

1  
Enter number of variables  
5  
Enter number of constraint functions  
2  
Enter a vector of coefficients of objective function:  
-5 -2 -3 0 0  
Enter a matrix of coefficients of constraint function:  
1 5 2 1 0  
1 -5 -6 0 1  
Enter a vector of right-hand side numbers:  
50 20  
Enter the initial solution:  
15 1 1 28 16  
Enter the desired number of decimal places:

4  
**Correct answer:**  $F_{max} = -223.75, x = (42.5, 0, 3.75, 0, 0)$

**Copy and paste to try this test:**

1  
5  
2  
-5 -2 -3 0 0  
1 5 2 1 0  
1 -5 -6 0 1  
50 20  
15 1 1 28 16  
4

