```
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% Q1.The standard weight of special purpose brick is 5kg. and it
  contains two basic ingredients B1 and B2. B1 costs Rs. 5 per kg.
  and B2 costs 8 per kg. Strength consideration state that the brick
  contains not more than 4 kg of B1 and minimum of 2 kg. of B2. Since
  the demand for the product is likely to be related to the price of
  the brick, find the minimum cost of the brick satisfying the above
  conditions.

f=[-5;-8];
A=[1 1; 1 0;0 1];
b=[5;4;2];
Aeq=[1 1;0 0;0 0];
beq=[5;0;0];
LB=[0;0];UB=[];
[x, z]=linprog(f,A,b,Aeq,beq,LB,UB) ;
disp("value of x1 is "+x(1));
disp("value of x2 is "+x(2));
disp(" Min Z is is "+(-z));
```

Optimal solution found.

value of x1 is 3
value of x2 is 2
* Min Z is is 31*

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```matlab
% Q2. (Allocation problem) A cooperative society of farmers has
 50 hectare of land to grow two crops X and Y. The profit from
 crops X and Y per hectare are estimated as Rs 10,500 and Rs 9,000
 respectively. To control weeds, a liquid herbicide has to be used
 for crops X and Y at rates of 20 litres and 10 litres per hectare.
 Further, no more than 800 litres of herbicide should be used in order
 to protect fish and wild life using a pond which collects drainage
 from this land. How much land should be allocated to each crop so as
 to maximise the total profit of the society?

x = optimvar('x');
y = optimvar('y');
prob = optimproblem('Objective',10500*x
+9000*y,'ObjectiveSense','max');
prob.Constraints.c1 = 2*x + y <= 80;
prob.Constraints.c2 = x + y <= 50;
problem = prob2struct(prob);
[sol,fval] = linprog(problem);
disp("value of x1 is "+sol(1));
disp("value of x2 is "+sol(2));
fprintf("Max Z is %f ",-fval);
```

Optimal solution found.

value of x1 is 30
value of x2 is 20
Max Z is 495000.000000

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