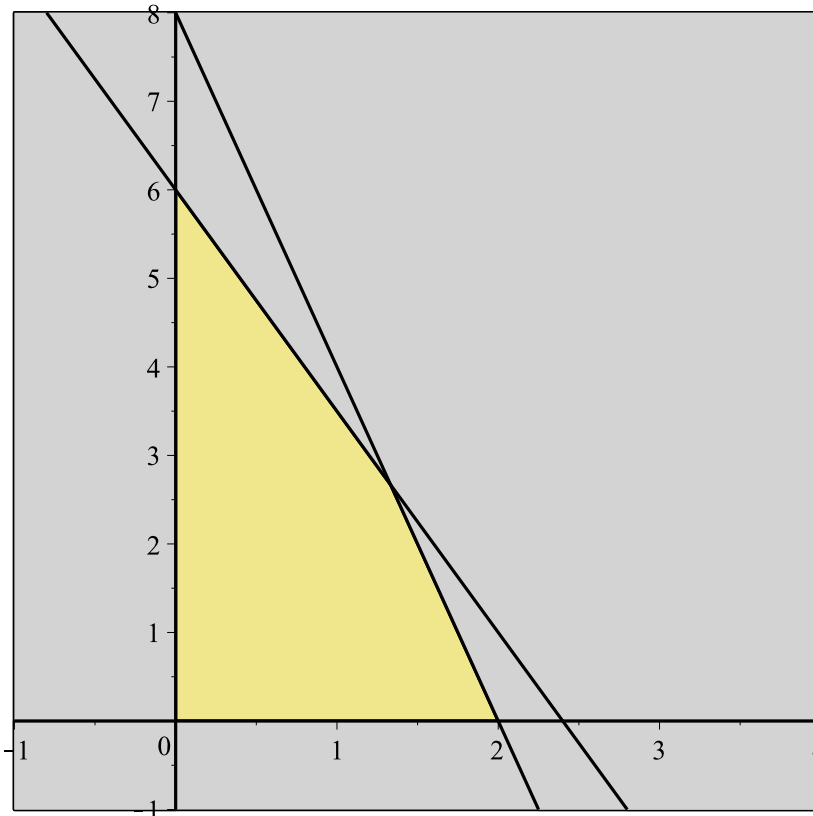


```

> with(plots):
> inequal( { 8*x+2*y<=16, 5*x+2*y<=12,x>=0, y>=0}, x=-1..4, y=-1.
.8,optionsfeasible=[color="Khaki"]);

```



```

> with(simplex);
> #Define the objective function and constraints
> objFn:=4*x[1]+2*x[2];
> C:={2*x[1]+x[2]<=6, x[1]+3*x[2]<=9, x[1]>=0, x[2]>=0};

```

[basis, convexhull, cterm, define_zero, display, dual, feasible, maximize, minimize, pivot, pivoteqn, pivotvar, ratio, setup, standardize]

$$\text{objFn} := 4x_1 + 2x_2$$

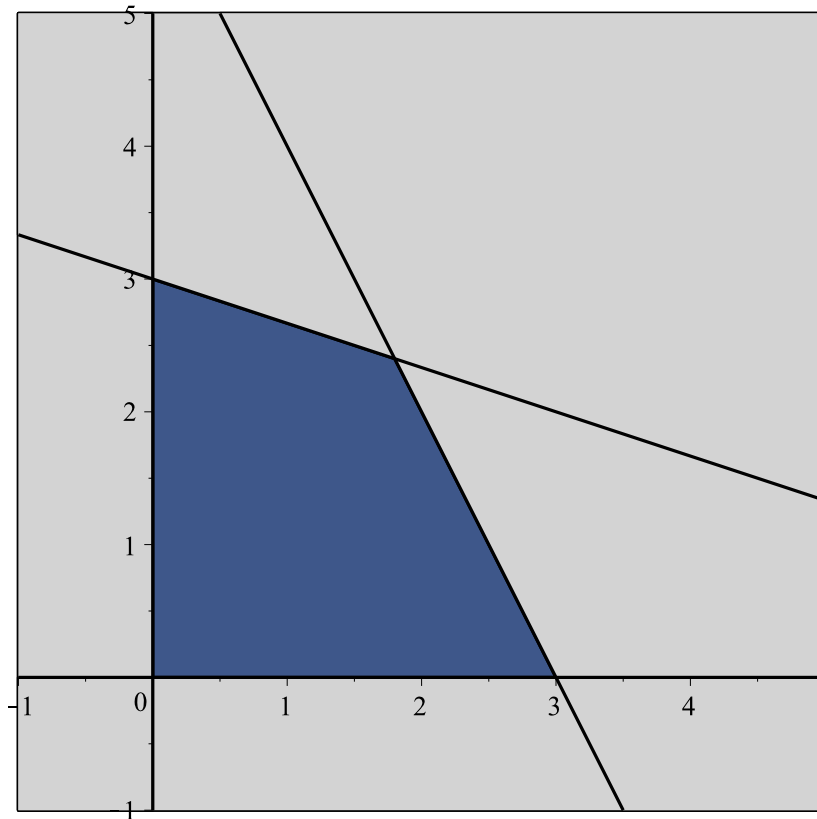
$$C := \{0 \leq x_1, 0 \leq x_2, x_1 + 3x_2 \leq 9, 2x_1 + x_2 \leq 6\}$$

(1)

```

> #Plot the feasible set
> inequal(C,x[1]=-1..5,x[2]=-1..5);

```



```
> #Solve:
> maximize(objFn,C);
```

$$\{x_1 = 3, x_2 = 0\}$$

(2)

```
> #Reproduce Figure 5, p 65 in the text:
```

```
> with(plots):
> F1:=3*x[1]+2*x[2];
> A:=contourplot(F1,x[1]=-1..60,x[2]=-1..65,contours=[60, 100,
121],linestyle=dot,color=green):
> C:={{(1/40)*x[1]+(1/60)*x[2]<=1,(1/50)*x[1]+(1/50)*x[2]<=1,x[1]>=
0,x[2]>=0}};
> B:=inequal(C,x[1]=-1..60,x[2]=-1..60,optionsfeasible=[color=
"white"]):
> display(A,B);
```

$$F1 := 3x_1 + 2x_2$$

$$C := \left\{ 0 \leq x_1, 0 \leq x_2, \frac{1}{40}x_1 + \frac{1}{60}x_2 \leq 1, \frac{1}{50}x_1 + \frac{1}{50}x_2 \leq 1 \right\}$$

