

```
$Title Newsvendor_2
```

```
Set S /s1*s5/
```

Positive Variable

```
x  
m(s)  
MM(s)  
;  
*x.fx=50;
```

```
Binary Variable u(s);
```

Parameter

```
d(s)  
/  
s1      0  
s2      30  
s3      50  
s4      70  
s5      100  
/
```

```
prob(s)  
;
```

```
prob(s)=1/5;
```

```
Scalar bM ;  
bM=smax(s,d(s));
```

```
Free Variable z;
```

Equations

```
obj  
cons1  
cons2  
cons3  
cons4  
cons5  
;  
  
obj(s)..      z =l= -7*x + 10*m(s)+2*MM(s);  
  
cons1(s)..    m(s)=l=x;  
cons2(s)..    m(s)=l=d(s);  
cons3(s)..    MM(s)=g=x-d(s);  
cons4(s)..    MM(s)=l=x-d(s) + (1-u(s))*bM;  
cons5(s)..    MM(s)=l=u(s)*bM;
```

```
Model Test1
```

```
/  
obj  
cons1  
cons2  
cons3  
cons4  
cons5  
/  
;
```

```
Options
```

```
MIP = CPLEX
OPTCR=0
RESLIM=120
;
```

```
Solve Test1 US MIP MAX Z
```

```
Display
```

```
"input"
```

```
Prob
```

```
bM
```

```
;
```

```
Display
```

```
"Output"
```

```
x.l
```

```
u.l
```

```
m.l
```

```
MM.l
```

```
Z.l
```

```
;
```

```
Parameter
```

```
R(s);
```

```
R(s) = -7*x.l + 10*m.l(s)+2*MM.l(s);
```

```
Display R;
```

