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> with(LinearAlgebra):
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```
> B:=<<-1,1,2,2>|<-1,2,1,2>|<-1,2,2,1>|<0,1,0,0>|<0,0,1,0>|<0,0,0,
  1>|<0,20,20,20>>;
```

$$B := \begin{bmatrix} -1 & -1 & -1 & 0 & 0 & 0 & 0 \\ 1 & 2 & 2 & 1 & 0 & 0 & 20 \\ 2 & 1 & 2 & 0 & 1 & 0 & 20 \\ 2 & 2 & 1 & 0 & 0 & 1 & 20 \end{bmatrix} \quad (1)$$

```
> B1:=RowOperation(B,3,1/2):
  B2:=RowOperation(B1,[1,3],1):
  B3:=RowOperation(B2,[2,3],-1):
  B4:=RowOperation(B3,[4,3],-2);
```

$$B4 := \begin{bmatrix} 0 & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 & 10 \\ 0 & \frac{3}{2} & 1 & 1 & -\frac{1}{2} & 0 & 10 \\ 1 & \frac{1}{2} & 1 & 0 & \frac{1}{2} & 0 & 10 \\ 0 & 1 & -1 & 0 & -1 & 1 & 0 \end{bmatrix} \quad (2)$$

```
> B5:=RowOperation(B4,[1,4],1/2):
  B6:=RowOperation(B5,[2,4],-3/2):
  B7:=RowOperation(B6,[3,4],-1/2);
```

$$B7 := \begin{bmatrix} 0 & 0 & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 10 \\ 0 & 0 & \frac{5}{2} & 1 & 1 & -\frac{3}{2} & 10 \\ 1 & 0 & \frac{3}{2} & 0 & 1 & -\frac{1}{2} & 10 \\ 0 & 1 & -1 & 0 & -1 & 1 & 0 \end{bmatrix} \quad (3)$$

```
> B8:=RowOperation(B7,2,2/5):
  B9:=RowOperation(B8,[1,2],1/2):
  B10:=RowOperation(B9,[3,2],-3/2):
  B11:=RowOperation(B10,[4,2],1);
```

(4)

$$B11 := \begin{bmatrix} 0 & 0 & 0 & \frac{1}{5} & \frac{1}{5} & \frac{1}{5} & 12 \\ 0 & 0 & 1 & \frac{2}{5} & \frac{2}{5} & -\frac{3}{5} & 4 \\ 1 & 0 & 0 & -\frac{3}{5} & \frac{2}{5} & \frac{2}{5} & 4 \\ 0 & 1 & 0 & \frac{2}{5} & -\frac{3}{5} & \frac{2}{5} & 4 \end{bmatrix} \quad (4)$$

```
> C:=<<-3,4,2>|<8,2,3>|<0,1,0>|<0,0,1>|<0,12,6>>;
```

$$C := \begin{bmatrix} -3 & 8 & 0 & 0 & 0 \\ 4 & 2 & 1 & 0 & 12 \\ 2 & 3 & 0 & 1 & 6 \end{bmatrix} \quad (5)$$

```
> C1:=RowOperation(C,2,1/4):
  C2:=RowOperation(C1,[1,2],3):
  C3:=RowOperation(C2,[3,2],-2);
```

$$C3 := \begin{bmatrix} 0 & \frac{19}{2} & \frac{3}{4} & 0 & 9 \\ 1 & \frac{1}{2} & \frac{1}{4} & 0 & 3 \\ 0 & 2 & -\frac{1}{2} & 1 & 0 \end{bmatrix} \quad (6)$$