For 1.10: 10
Migrations rates between the city and the suburbs are given. We compute the populations after 2 years.

First we set up the Migration Matrix symbolically:

```maple
> From_City := Vector([C2C, C2S]);
> From_Burbs := Vector([S2C, S2S]);
> MigMat := Matrix([From_City, From_Burbs]);
```

Then we enter the given values:

```maple
> C2S := 7/100:  Each year, 7% of the city population moves to the suburbs.
> C2C := 1 - C2S:  The fraction remaining in the city.
> S2C := 3/100:  Each year, 3% of the suburban population moves into the city.
> S2S := 1 - S2C:  The fraction staying in the suburbs.
> MigMat;  The Migration Matrix with numeric data entered.
```

Starting populations:

```maple
> City2000 := 800000:  Burbs2000 := 500000:  Starting populations:
```

After one year:

```maple
> Pops2001 := Multiply(MigMat, Pops2000);  After one year.
```

After two years:

```maple
> Pops2002 := Multiply(MigMat, Pops2001);  After two years.
```

2002 Populations:
City: 722100
Burbs: 577900
Note we could also have done:

```plaintext
> Multiply(Multiply(MigMat, MigMat), Pops2000);

\[
\begin{pmatrix}
722100 \\
577900
\end{pmatrix}
```