Verifying Linear Solve Example with Maple

Include Linear Algebra package and set precision:

```
> with(linalg):
Warning, new definition for norm
Warning, new definition for trace
> Digits := 16;
```

$$Digits := 16$$

Set up test matrix ...

```
> A := matrix(3,3,
        [ [ 1.23,  0.24, -0.45] ,
          [-0.43,  2.45,  0.78] ,
          [ 0.51, -0.68,  3.23] ] );
```

$$A := \begin{bmatrix} 1.23 & .24 & -.45 \\ -.43 & 2.45 & .78 \\ .51 & -.68 & 3.23 \end{bmatrix}$$

... and right-hand side vector:

```
> b := vector( [6.78,-3.45,1.67] );
```

$$b := [6.78, -3.45, 1.67]$$

Solve the system ...

```
> x := linsolve(A,b);
```

$$x := [\ 5.426364412431639,\ -.325775376817393,\ -.4083508069894620\ ]$$

... and check that the solution satisfies the original equations:

```
> bcheck := multiply(A,x);
```

$$bcheck := [\ 6.780000000000000,\ -3.449999999999998,\ 1.670000000000001\ ]$$

```
> evalm(b - bcheck);
```

$$[0,\ -.2\ 10^{-14},\ -.1\ 10^{-14}]$$