Exercice 25

Série 4

a)

```
vecA := matrix([6,2]):
vecB := matrix([3,-9]):
vecA_prime := linalg::scalarProduct(vecA, vecB)/norm(vecB,2)^2*vecB;
vecB_prime := linalg::scalarProduct(vecA, vecB)/norm(vecA,2)^2*vecA;
```

$$\begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

$$\begin{pmatrix} 0 \\ 0 \end{pmatrix}$$

b)

```
vecA := matrix([1,0]):
vecB := matrix([-3,4]):
vecA_prime := linalg::scalarProduct(vecA, vecB)/norm(vecB,2)^2*vecB;
vecB_prime := linalg::scalarProduct(vecA, vecB)/norm(vecA,2)^2*vecA;
```

$$\begin{pmatrix} \frac{9}{25} \\ -\frac{12}{25} \end{pmatrix}$$

$$\begin{pmatrix} -3 \\ 0 \end{pmatrix}$$

c)

```
vecA := matrix([1,2,-2]):
vecB := matrix([2,0,-3]):
vecA_prime := linalg::scalarProduct(vecA, vecB)/norm(vecB,2)^2*vecB;
vecB_prime := linalg::scalarProduct(vecA, vecB)/norm(vecA,2)^2*vecA;
```

$$\begin{pmatrix} \frac{16}{13} \\ 0 \\ -\frac{24}{13} \end{pmatrix}$$

$$\begin{pmatrix} \frac{8}{9} \\ \frac{16}{9} \\ -\frac{16}{9} \end{pmatrix}$$