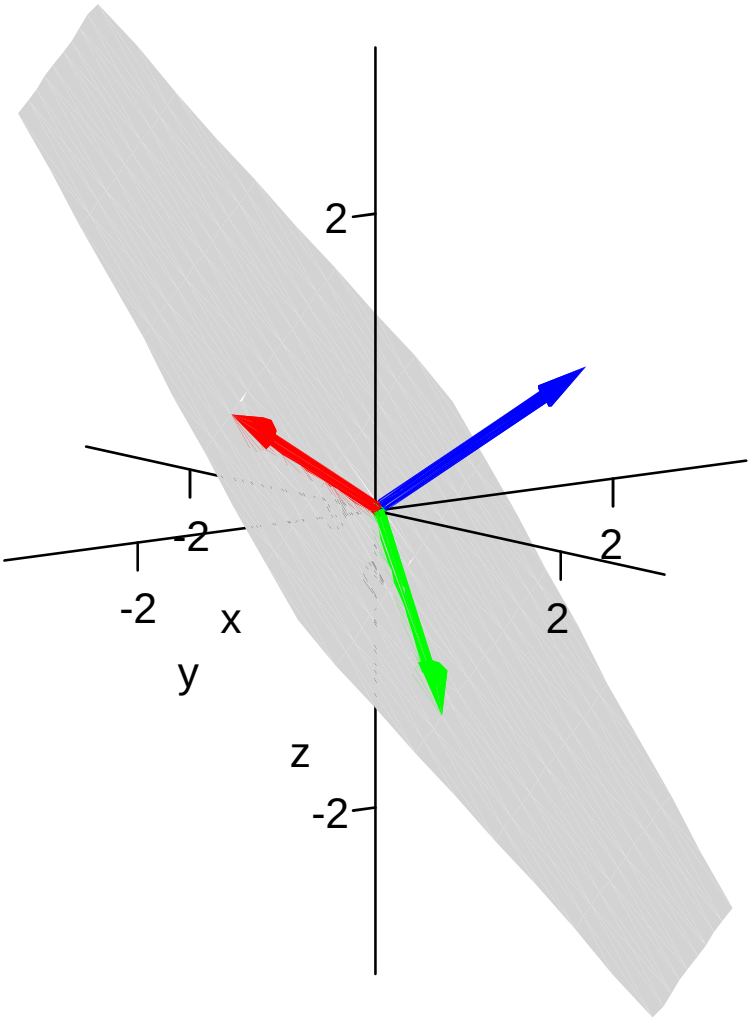
```
> restart :
> interface(warnlevel = 0) :          #` `Maple 12` `
> with(plots) :
> with(LinearAlgebra) :
```

Vectors: problem #2

```
> f := x + y + z = 0 : # equation of a plane perpendicular to vector A = i + j + k
  p := implicitplot3d(f, x = -3 ..3, y = -3 ..3, z = -3 ..3, axes = normal,
                      style = patchnogrid, color = "LightGray") :
  A := Vector([1, 1, 1]) :
  V1 := Vector([1, −2, 1]) :
  V2 := Vector([2, −1, −1]) :
  a := arrow(A, color = blue) :      # vector normal to the plane A = i + j + k
  b := arrow(V1, color = red) :      # vector in the plane V1 = i − 2j + k
  c := arrow(V2, color = green) :    # vector in the plane V2 = 2i − j − k
  display([p, a, b, c], tickmarks = [4, 4, 4], orientation = [ − 38, 80]);
```



Determining the inner/dot products

```
> DotProduct(A, V1);
```

$$0 \quad (1)$$

```
> DotProduct(A, V2);
```

$$0 \quad (2)$$

```
> DotProduct(V1, V2);
```

$$3 \quad (3)$$

Determining the angle between vectors V_1 and V_2

```
> α := arccos( DotProduct(V1, V2) / (VectorNorm(V1, Euclidean) · VectorNorm(V2, Euclidean)) );
  α := α· ( 180 / π ); # convert to degrees
```

$$\alpha := \frac{1}{3}\,\pi$$

$$\alpha := 60 \quad (4)$$