Decompose the rotation into two steps : first rotate about y to get to θ in the x direction.

In[1]:=
```
r1 = RotationMatrix[θ, {0, 1, 0}]
```

Out[1]=
```
{{Cos[θ], 0, Sin[θ]}, {0, 1, 0}, {-Sin[θ], 0, Cos[θ]}}
```

Check this by seeing where the {0,0,1} ends up

In[2]:=
```
r1.{0, 0, 1}
```

Out[2]=
```
{Sin[θ], 0, Cos[θ]}
```

Now rotate about z to get to ϕ

In[3]:=
```
r2 = RotationMatrix[ϕ, {0, 0, 1}]
```

Out[3]=
```
{{Cos[ϕ], -Sin[ϕ], 0}, {Sin[ϕ], Cos[ϕ], 0}, {0, 0, 1}}
```

In[4]:=
```
r = r2.r1
```

Out[4]=
```
{{Cos[θ] Cos[ϕ], -Sin[ϕ], Cos[ϕ] Sin[θ]},
 {Cos[θ] Sin[ϕ], Cos[ϕ], Sin[θ] Sin[ϕ]}, {-Sin[θ], 0, Cos[θ]}}
```

In[5]:=
```
r // MatrixForm
```

Out[5]//MatrixForm=

$$\begin{pmatrix} \mathrm{Cos}[\theta]\,\mathrm{Cos}[\phi] & -\mathrm{Sin}[\phi] & \mathrm{Cos}[\phi]\,\mathrm{Sin}[\theta] \\ \mathrm{Cos}[\theta]\,\mathrm{Sin}[\phi] & \mathrm{Cos}[\phi] & \mathrm{Sin}[\theta]\,\mathrm{Sin}[\phi] \\ -\mathrm{Sin}[\theta] & 0 & \mathrm{Cos}[\theta] \end{pmatrix}$$

In[6]:=
```
r.{0, 0, 1}
```

Out[6]=
```
{Cos[ϕ] Sin[θ], Sin[θ] Sin[ϕ], Cos[θ]}
```