In[103]:=
```
ms = {{sx, 0, 0, 0}, {0, sy, 0, 0}, {0, 0, sz, 0}, {0, 0, 0, 1}}
```

Out[103]=
```
{{sx, 0, 0, 0}, {0, sy, 0, 0}, {0, 0, sz, 0}, {0, 0, 0, 1}}
```

In[104]:=
```
mrz = {{cosz, -sinz, 0, 0}, {sinz, cosz, 0, 0}, {0, 0, 1, 0}, {0, 0, 0, 1}}
```

Out[104]=
```
{{cosz, -sinz, 0, 0}, {sinz, cosz, 0, 0}, {0, 0, 1, 0}, {0, 0, 0, 1}}
```

In[105]:=
```
mt = {{1, 0, 0, 0}, {0, 1, 0, 0}, {0, 0, 1, 0}, {tx, ty, tz, 1}}
```

Out[105]=
```
{{1, 0, 0, 0}, {0, 1, 0, 0}, {0, 0, 1, 0}, {tx, ty, tz, 1}}
```

In[106]:=
```
v = {x, y, z, 1}
```

Out[106]=
```
{x, y, z, 1}
```

In[107]:=
```
v.ms.mrz.mt
```

Out[107]=
```
{tx + cosz sx x + sinz sy y, ty - sinz sx x + cosz sy y, tz + sz z, 1}
```

In[108]:=
```
mmw = ms.mrz.mt
```

Out[108]=
```
{{cosz sx, -sinz sx, 0, 0}, {sinz sy, cosz sy, 0, 0}, {0, 0, sz, 0}, {tx, ty, tz, 1}}
```

In[109]:=
```
v.mmw
```

Out[109]=
```
{tx + cosz sx x + sinz sy y, ty - sinz sx x + cosz sy y, tz + sz z, 1}
```

In[110]:=
```
ms.mrz.mt // MatrixForm
```

Out[110]//MatrixForm=

$$\begin{pmatrix} \text{cosz sx} & -\text{sinz sx} & 0 & 0 \\ \text{sinz sy} & \text{cosz sy} & 0 & 0 \\ 0 & 0 & \text{sz} & 0 \\ \text{tx} & \text{ty} & \text{tz} & 1 \end{pmatrix}$$