```
In[•]:= (* This uses the Gamma matrices as the example,
    with the Clifford spectrum just a point.  Was expecting a three sphrere. *)

In[•]:= n = 4;

In[•]:= q = 1;

In[•]:= r = 1;

In[•]:= s = 1;

In[•]:= t = 1;

In[•]:= sigmax = {{0, 1}, {1, 0}};

In[•]:= sigmay = {{0, -ⅈ}, {ⅈ, 0}};

In[•]:= sigmaz = {{1, 0}, {0, -1}};

In[•]:= I2 = IdentityMatrix[2];

In[•]:= AA = q * KroneckerProduct[-sigmay, sigmax];

In[•]:= MatrixForm[AA]
```

Out[•]//MatrixForm=

$$\begin{pmatrix} 0 & 0 & 0 & i \\ 0 & 0 & i & 0 \\ 0 & -i & 0 & 0 \\ -i & 0 & 0 & 0 \end{pmatrix}$$

```
In[•]:= BB = r * KroneckerProduct[-sigmay, sigmay];

In[•]:= MatrixForm[BB]
```

Out[•]//MatrixForm=

$$\begin{pmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix}$$

```
In[•]:= CC = s * KroneckerProduct[-sigmay, sigmaz];

In[•]:= MatrixForm[CC]
```

Out[•]//MatrixForm=

$$\begin{pmatrix} 0 & 0 & i & 0 \\ 0 & 0 & 0 & -i \\ -i & 0 & 0 & 0 \\ 0 & i & 0 & 0 \end{pmatrix}$$

```
In[•]:= DD = t * KroneckerProduct[sigmax, I2];

In[•]:= MatrixForm[DD]
```

Out[•]//MatrixForm=

$$\begin{pmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix}$$

In[∘]:=
```
loclzrHalf = KroneckerProduct[ⅈ * sigmax, AA - w * IdentityMatrix[4]] +
   KroneckerProduct[ⅈ * sigmay, BB - x * IdentityMatrix[4]] +
   KroneckerProduct[ⅈ * sigmaz, CC - y * IdentityMatrix[4]] +
   KroneckerProduct[I2, DD - z * IdentityMatrix[4]];
```

In[∘]:=
```
charpoly = FullSimplify[Det[loclzrHalf]]
```

Out[∘]= $\left(w^2 + x^2 + y^2 + z^2\right)^3 \left(8 + w^2 + x^2 + y^2 + z^2\right)$

In[∘]:=
```
(*Notice this involves only  w  and R = Sqrt[x^2 + w^2 + z^2]  is the result of a
  curve rotated into two more dimensions *)
```

In[∘]:=
```
curvePoly = ReplaceAll[charpoly, {y^2 → 0, z^2 → 0, x^2 → R^2}]
```

Out[∘]= $\left(R^2 + w^2\right)^3 \left(8 + R^2 + w^2\right)$