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Practical 14

Question: Locate the poles of $f(z) = \frac{1}{z^4+26z^2+5}$ and specify their order.

In[•]:=
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f[z_] = 1 / (5 z^4 + 26 z^2 + 5);
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In[•]:=
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Solve[1 / f[z] == 0, z]
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Out[•]=

$$\left\{\left\{z \to -\frac{i}{\sqrt{5}}\right\}, \left\{z \to \frac{i}{\sqrt{5}}\right\}, \left\{z \to -i\sqrt{5}\right\}, \left\{z \to i\sqrt{5}\right\}\right\}$$

In[•]:=
```
Text[
 "The function f has poles at z=-i/Sqrt[5], z=i/Sqrt[5], z=-i Sqrt[5] and at z=i Sqrt[5] of order 1."]
```

Out[•]=

The function f has poles at $z=-\frac{i}{\sqrt{5}}$, $z=\frac{i}{\sqrt{5}}$, $z=-i\sqrt{5}$ and at $z=i\sqrt{5}$ of order 1.