```
> restart     # solve with variable epsilon
```

$$> eq3 := 2 \cdot d_2 + \frac{6 \cdot d_3 \cdot 11}{3} = \frac{\left(d_1 + \frac{2 \cdot d_2 \cdot 11}{3} + 3 \cdot d_3 \cdot \left(\frac{11}{3}\right)^2\right)^2}{d_0 + \frac{d_1 \cdot 11}{3} + d_2 \cdot \left(\frac{11}{3}\right)^2 + d_3 \cdot \left(\frac{11}{3}\right)^3} - \frac{\epsilon \cdot \left(d_0 + \frac{d_1 \cdot 11}{3} + d_2 \cdot \left(\frac{11}{3}\right)^2 + d_3 \cdot \left(\frac{11}{3}\right)^3\right)}{\left(\frac{11}{3}\right)^2} :$$

$$> eq4 := 2 \cdot d_2 + \frac{6 \cdot d_3 \cdot 19}{3} = \frac{\left(d_1 + \frac{2 \cdot d_2 \cdot 19}{3} + 3 \cdot d_3 \cdot \left(\frac{19}{3}\right)^2\right)^2}{d_0 + \frac{d_1 \cdot 19}{3} + d_2 \cdot \left(\frac{19}{3}\right)^2 + d_3 \cdot \left(\frac{19}{3}\right)^3} - \frac{\epsilon \cdot \left(d_0 + \frac{d_1 \cdot 19}{3} + d_2 \cdot \left(\frac{19}{3}\right)^2 + d_3 \cdot \left(\frac{19}{3}\right)^3\right)}{\left(\frac{19}{3}\right)^2} :$$

$$> eq5 := d_0 + d_1 + d_2 + d_3 = 8 :$$

$$> eq6 := d_0 + d_1 \cdot 9 + d_2 \cdot 9^2 + d_3 \cdot 9^3 = 2 :$$

$$> solve(\{eq3, eq4, eq5, eq6\}, \{d_0, d_1, d_2, d_3\}) \text{ assuming } \epsilon :: real :$$

```
> assign(%)
```

$$> \epsilon := -0.1$$

$$\epsilon := -0.1 \quad \textbf{(1)}$$

$$> simplify(d_0)$$

$$12.4284775514022 - 4.45119223219462\,I \quad \textbf{(2)}$$

```
> restart     # fsolve without variable epsilon
```

$$> eq3 := 2 \cdot d_2 + \frac{6 \cdot d_3 \cdot 11}{3} = \frac{\left(d_1 + \frac{2 \cdot d_2 \cdot 11}{3} + 3 \cdot d_3 \cdot \left(\frac{11}{3}\right)^2\right)^2}{d_0 + \frac{d_1 \cdot 11}{3} + d_2 \cdot \left(\frac{11}{3}\right)^2 + d_3 \cdot \left(\frac{11}{3}\right)^3} - \frac{\epsilon \cdot \left(d_0 + \frac{d_1 \cdot 11}{3} + d_2 \cdot \left(\frac{11}{3}\right)^2 + d_3 \cdot \left(\frac{11}{3}\right)^3\right)}{\left(\frac{11}{3}\right)^2} :$$

$$> eq4 := 2 \cdot d_2 + \frac{6 \cdot d_3 \cdot 19}{3} = \frac{\left(d_1 + \frac{2 \cdot d_2 \cdot 19}{3} + 3 \cdot d_3 \cdot \left(\frac{19}{3}\right)^2\right)^2}{d_0 + \frac{d_1 \cdot 19}{3} + d_2 \cdot \left(\frac{19}{3}\right)^2 + d_3 \cdot \left(\frac{19}{3}\right)^3}$$

$$-\frac{\epsilon\cdot\left(d_0+\frac{d_1\cdot 19}{3}+d_2\cdot\left(\frac{19}{3}\right)^2+d_3\cdot\left(\frac{19}{3}\right)^3\right)}{\left(\frac{19}{3}\right)^2}:$$

```
> eq5 := d[0] + d[1] + d[2] + d[3] = 8 :
> eq6 := d[0] + d[1]·9 + d[2]·9^2 + d[3]·9^3 = 2 :
> ϵ := -0.1
```

$$\epsilon := -0.1 \quad \textbf{(3)}$$

```
> fsolve( {eq3, eq4, eq5, eq6}, {d[0], d[1], d[2], d[3]} ) assuming ϵ :: real :
> assign(%)
> simplify(d[0])
```

$$9.660121266 \quad \textbf{(4)}$$

```
>
```