

```
In[ ]:= A =  $\begin{pmatrix} 1 - \theta^2 * 5.2 * 10^{-6} & \theta^2 * 10^{-4} \\ \theta^2 * 5.35 * 10^{-5} & 1 - \theta^2 * 1.38 * 10^{-3} \end{pmatrix}$ ; b =  $\begin{pmatrix} -\theta^2 * 3 * 10^{-7} \\ \theta^2 * 4 * 10^{-6} \end{pmatrix}$ ;
LinearSolve[A, b]
```

```
Out[ ]:=  $\left\{ \frac{1. (3. \times 10^{-7} \theta^2 - 1.4 \times 10^{-11} \theta^4)}{-1. + 0.0013852 \theta^2 - 1.826 \times 10^{-9} \theta^4}, \frac{1. (-4. \times 10^{-6} \theta^2 + 4.75 \times 10^{-12} \theta^4)}{-1. + 0.0013852 \theta^2 - 1.826 \times 10^{-9} \theta^4} \right\}$ 
```

```
In[23]:= m1 = 15.2
m2 = 29.6
d11 = 3.43 * 10^-7
d22 = 0.0000466
d12 = -3.52 * 10^-6
```

$$w1 = \frac{1}{\sqrt{\frac{m1 \cdot d11 + m2 \cdot d22}{2}} - \sqrt{\left(\frac{m1 \cdot d11 - m2 \cdot d22}{2}\right)^2 + m1 \cdot m2 \cdot d12 \cdot d22}}$$

$$w2 = \frac{1}{\sqrt{\frac{m1 \cdot d11 + m2 \cdot d22}{2}} + \sqrt{\left(\frac{m1 \cdot d11 - m2 \cdot d22}{2}\right)^2 + m1 \cdot m2 \cdot d12 \cdot d22}}$$

```
w2 = 1128
```

```
w1 = 127.489
```

```
In[36]:= n2 = 60 * 1128 / (2 * 3.1415)
n1 = 60 * 127 / (2 * 3.1415)
```

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Out[36]= 10771.9
```

```
Out[37]= 1212.8
```

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10771.924240012731`
```