In[•]:=
```
A = {{1 - θ^2 * 5.2 * 10^-6, θ^2 * 10^-4}, {θ^2 * 5.35 * 10^-5, 1 - θ^2 * 1.38 * 10^-3}}; b = {{-θ^2 * 3 * 10^-7}, {θ^2 * 4 * 10^-6}};
LinearSolve[A, b]
```

Out[•]=

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

In[23]:=
```
m1 = 15.2
m2 = 29.6
d11 = 3.43 * 10^-7
d22 = 0.0000466
d12 = -3.52 * 10^-6
w1 = 1 / Sqrt[(m1*d11+m2*d22)/2 - Sqrt[((m1*d11-m2*d22)/2)^2 + m1 * m2 * d12 * d22]]
w2 = 1 / Sqrt[(m1*d11+m2*d22)/2 + Sqrt[((m1*d11-m2*d22)/2)^2 + m1 * m2 * d12 * d22]]
```

```
w2 = 1128

w1 = 127.489
```

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

Out[36]=
```
10 771.9
```

Out[37]=
```
1212.8

10771.924240012731`
```

In[•]:=
```
A = {{1 - θ^2 * 5.2 * 10^-6, θ^2 * 10^-4}, {θ^2 * 5.35 * 10^-5, 1 - θ^2 * 1.38 * 10^-3}}; b = {{-θ^2 * 3 * 10^-7}, {θ^2 * 4 * 10^-6}};
θ = 127.826
LinearSolve[A, b]
```

Out[•]=
```
127.826
```

Out[•]=
```
{0.0186603, -0.00217637}
```

In[•]:=
```
D1 = {0.01866, -0.002176}
A = {{m1, 0}, {0, m2}}
A * D1
```

Out[•]=
```
{0.01866, -0.002176}
```

Out[•]=
```
{{15.2, 0}, {0, 29.6}}
```

Out[•]=
```
{{0.283632, 0.}, {0., -0.0644096}}
```

In[•]:=
```
n0 = 200
θ = 2 * 3.14 * n0 / 60
```

Out[•]=
```
200
```

Out[•]=
```
20.9333
```

In[•]:=
```
A = {{1 - θ^2 * 5.2 * 10^-6, θ^2 * 10^-4}, {θ^2 * 5.35 * 10^-5, 1 - θ^2 * 1.38 * 10^-3}}; b = {{-θ^2 * 3 * 10^-7}, {θ^2 * 4 * 10^-6}};
θ = 20.933
LinearSolve[A, b]
```

Out[•]=
```
20.933
```

In[•]:=
```
{-0.00032737527022161025`, 0.00445381057656699`}
m1
```

Out[•]=
```
{-0.000327375, 0.00445381}
```

Out[•]=
```
15.2
```

In[•]:=
```
e1 = 2.5 * 10^-3
e2 = 3 * 10^-3
P1 = m1 * θ^2 * e1
```

Out[•]=
```
0.0025
```

Out[•]=
$$\frac{3}{1000}$$

Out[•]=
```
16.6512
```

In[•]:=
```
θ
```

In[•]:=
```
20.933`
P1
```

Out[•]=
```
20.933
```

Out[•]=
```
16.6512
```

In[•]:=
```
P2 = m2 * θ^2 * e2
```

Out[•]=
```
38.9113
```

In[•]:=
```
P1 * (-0.003) + P2 * (-0.921)
```

Out[•]=
```
-35.8873
```

In[•]:=
```
σ = 35.9 * 32 / 3.14 / (60 * 10^-3)^3
```

Out[•]=
$$1.6938 \times 10^{6}$$