Practical resonance calculations for class example, November 28.

```
> restart :
> with(LinearAlgebra) :
> A := Matrix(2, 2, [-2, 1, 1, -2]);
```

$$A := \begin{bmatrix} -2 & 1 \\ 1 & -2 \end{bmatrix} \quad (1)$$

```
> F0 := Vector([0, 3]);
```

$$F0 := \begin{bmatrix} 0 \\ 3 \end{bmatrix} \quad (2)$$

```
> Iden := IdentityMatrix(2);
```

$$Iden := \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad (3)$$

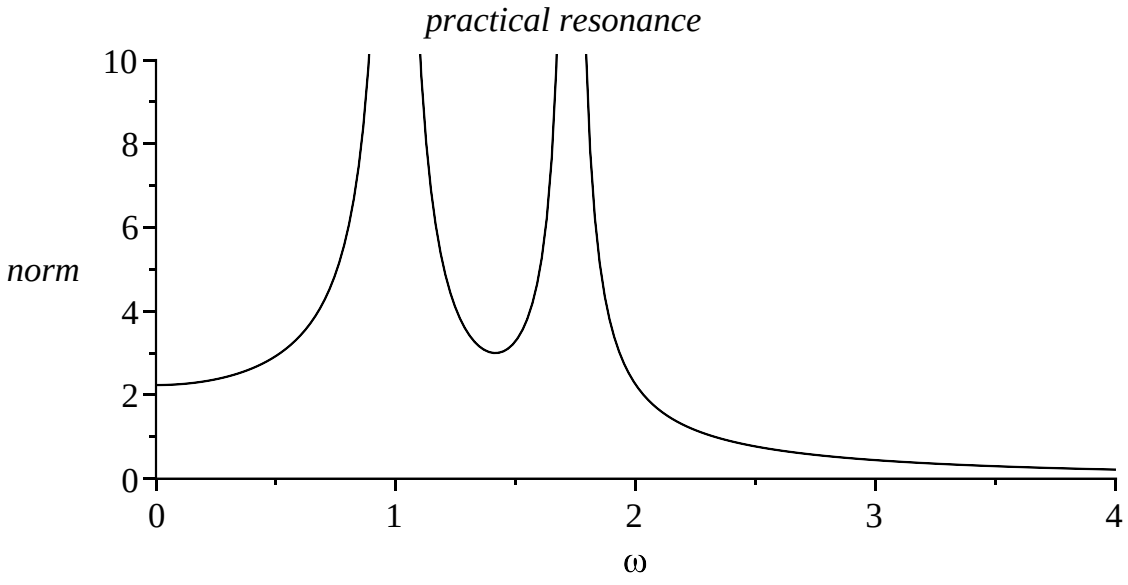
```
> c := ω→(A + ω^2·Iden)^(-1).(-F0);
```

$$c := \omega \rightarrow Typesetting:-delayDotProduct\left(\frac{1}{A + \omega^2\, Iden}, -F0\right) \quad (4)$$

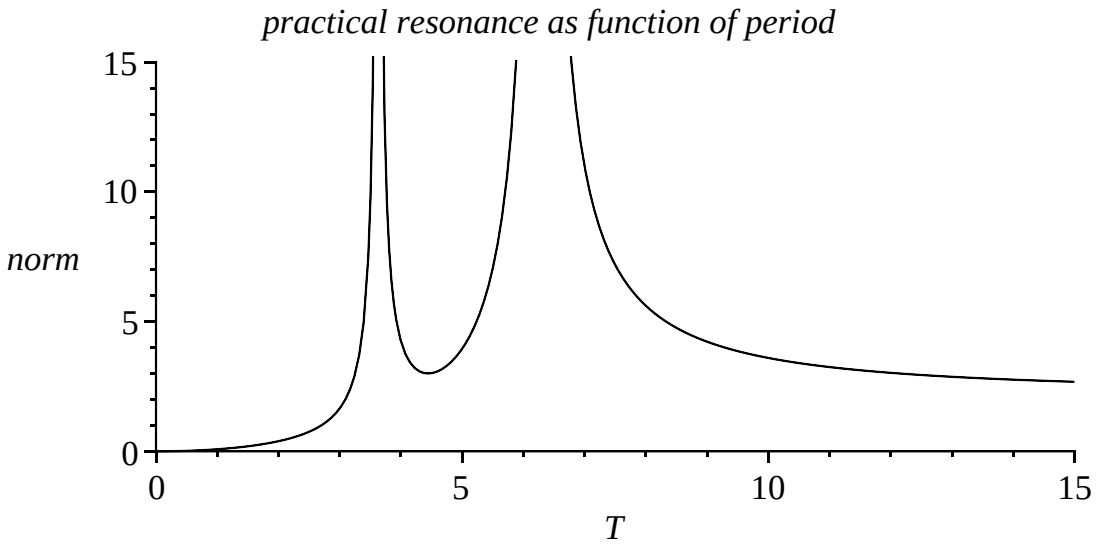
```
> c(ω);
```

$$\begin{bmatrix} \frac{3}{3 - 4\,\omega^2 + \omega^4} \\ -\frac{3\,(-2 + \omega^2)}{3 - 4\,\omega^2 + \omega^4} \end{bmatrix} \quad (5)$$

```
> with(plots) :
> plot(norm(c(ω), 2), ω = 0..4, norm = 0..10, color = black, title = 'practical resonance');
```



```
> plot(norm(c(2·Pi/T), 2), T = 0..15, norm = 0..15, color = black, title
  = 'practical resonance as function of period');
```




```
>
```