

VIB2021 : Continuous systems

Number of participants: 37

1

A continuous system has

as many
eigenfrequencies as
there are joints in the
structure



9%

2 votes

✓ an infinite number of
eigenfrequencies



91%

21 votes

it depends on the
frequency band of the
excitation signal



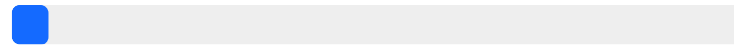
0%

0 votes

2

In practice, the number of dofs in a finite element is usually dictated by

The dynamics of the system



5%

1 vote

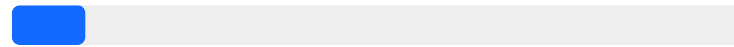
✓ The geometry of the system



86%

18 votes

The frequency of excitation of the system

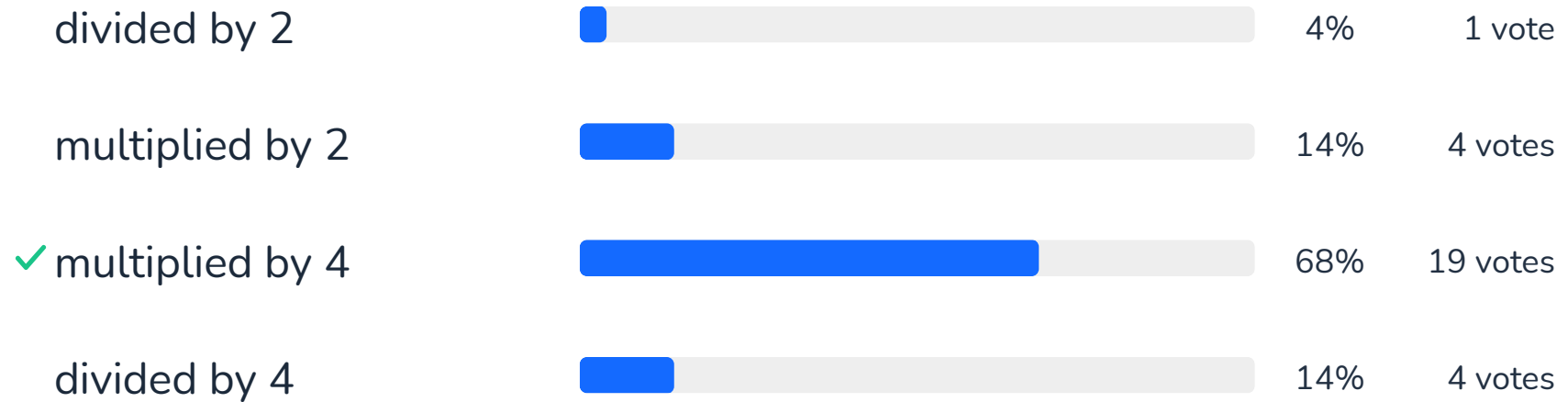


10%

2 votes

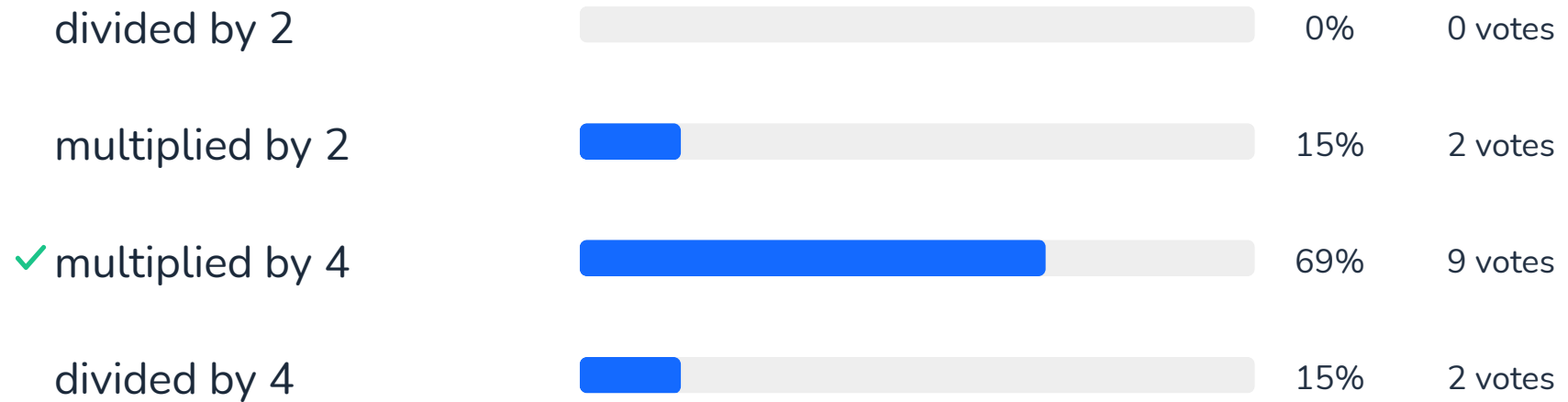
3

If the length of the bar is divided by 4, its natural frequency is



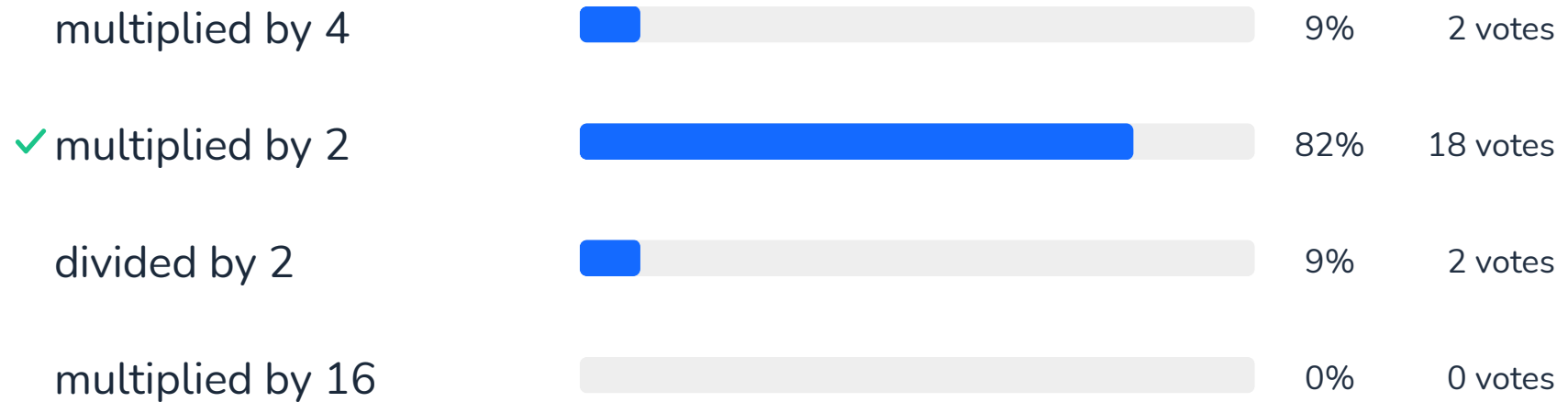
4

If the length of a beam is divided by 2, its first natural frequency is



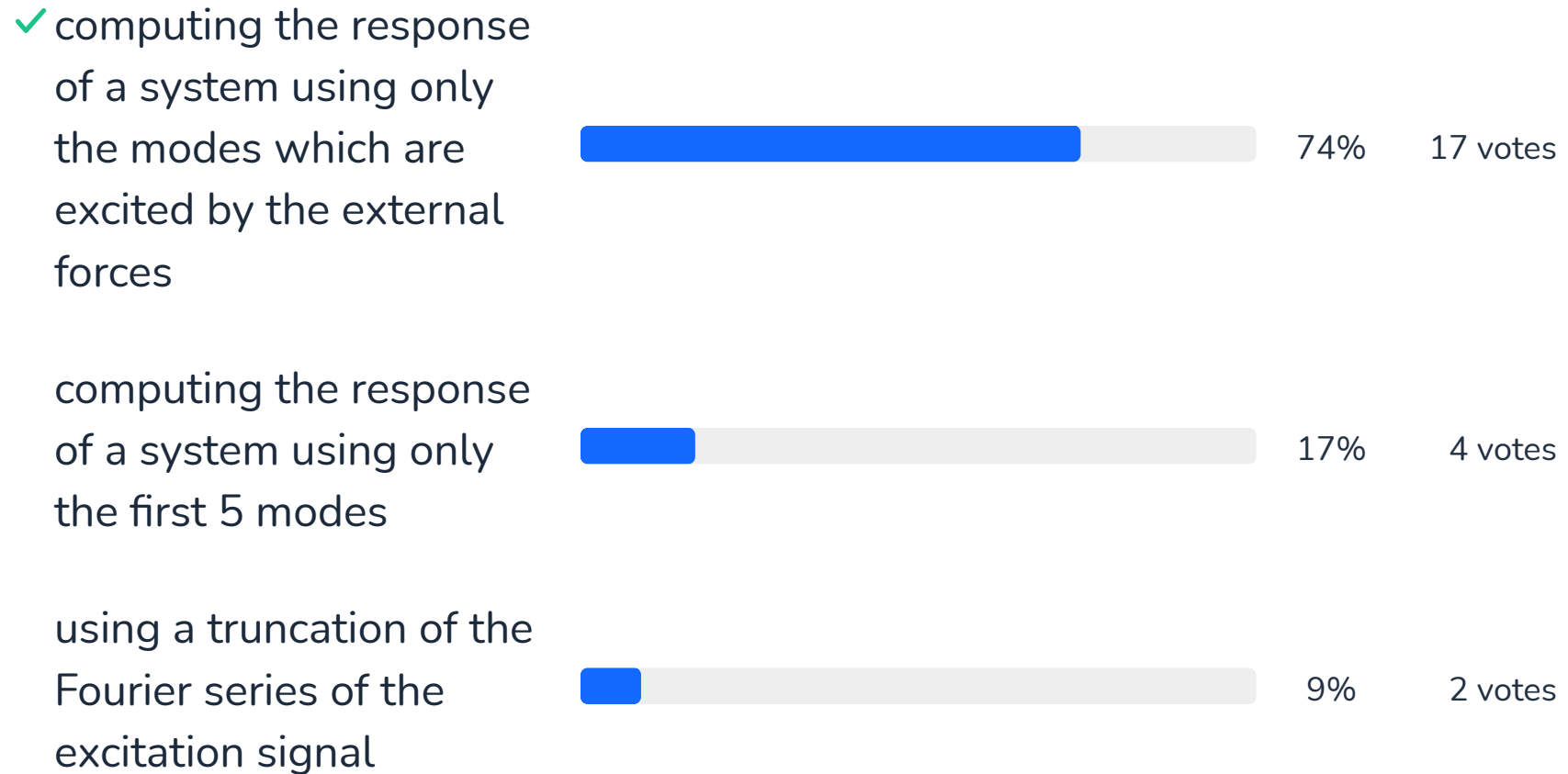
5

If the stiffness of a beam is multiplied by 4, its natural frequencies are



6

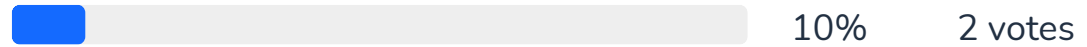
Modal truncation consists in



7

When performing modal truncation, the usual practice consists in

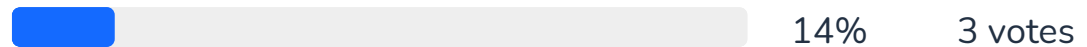
taking strictly the number of modes present in the frequency band of interest



✓ taking the number of modes in the band $[0, 1.5 w_{\max}]$ where w_{\max} is the max frequency of the band of interest



taking the number of modes in the band $[0, w_{\max}/1.5]$ where w_{\max} is the max frequency of



the band of interest

8

Consider a bar for which the ten first natural frequencies are at 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 Hz. You wish to compute the response using the truncation in the modal basis, from 0 to 5 Hz. How many modes should you use ?

