

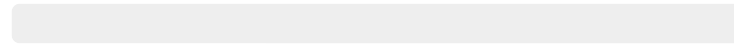
# DOS2019-Signal-Processing

Number of participants: 0

1

The typical range of frequencies of pedestrian induced vibrations is

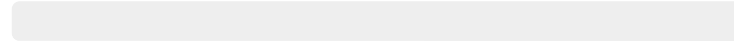
Below 1 Hz



0%

0 votes

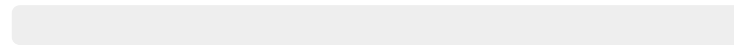
✓ Between 2 and 6 Hz



0%

0 votes

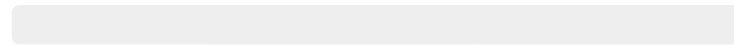
Above 10 Hz



0%

0 votes

Above 20 kHz



0%

0 votes

2

## The discrete Fourier transform applies to

any type of signal		0%	0 votes
only random signals		0%	0 votes
✓ only periodic signals		0%	0 votes

3

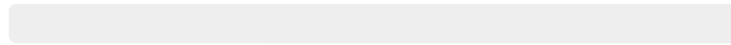
The continuous Fourier transform applies to

✓ any type of signal	<input type="checkbox"/>	0%	0 votes
periodic signals only	<input type="checkbox"/>	0%	0 votes
harmonic signals only	<input type="checkbox"/>	0%	0 votes
it depends on the type of excitation of the system	<input type="checkbox"/>	0%	0 votes

4

The continuous Fourier transform of a rectangle (pulse) is

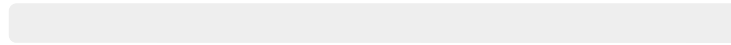
a cosine function



0%

0 votes

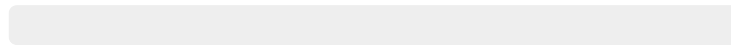
a sine function



0%

0 votes

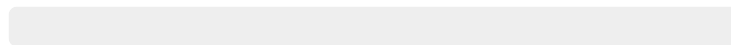
✓ a sinc function



0%

0 votes

a complex function  
which cannot be  
computed analytically


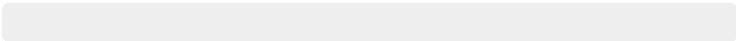
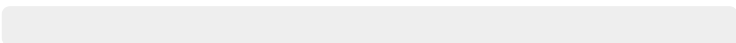
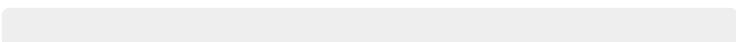


0%

0 votes

5

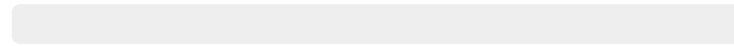
## Convolution in the time domain corresponds to

✓ multiplication in the frequency domain		0%	0 votes
convolution in the frequency domain		0%	0 votes
deconvolution in the frequency domain		0%	0 votes
division in the frequency domain		0%	0 votes

6

## Aliasing happens when

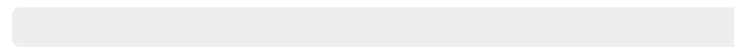
The sampling frequency is too high with respect to the frequency content of the signal



0%

0 votes

✓ The sampling frequency is too low with respect to the frequency content of the signal



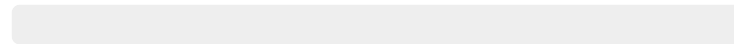
0%

0 votes

7

When using Fast Fourier Transform on sampled signals, you can increase the frequency resolution by

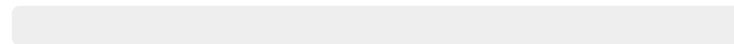
decreasing the time step of the sampling signal, keeping the total measurement time constant



0%

0 votes

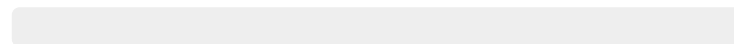
increasing the time step of the sampling signal, keeping the total measurement time constant



0%

0 votes

✓ increasing the measurement time,



0%

0 votes

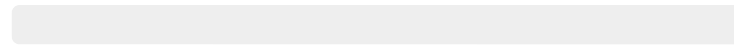


whatever the time step  
of the sampling signal

8

When using FFT, the time step of the sample signal has an influence on

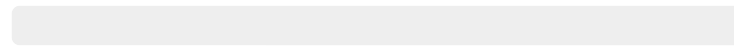
The frequency resolution of the FFT



0%

0 votes

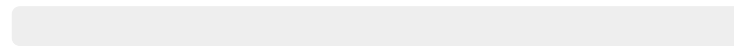
✓ The maximum frequency of the FFT



0%

0 votes

It has no influence on the FFT



0%

0 votes

9

Suppose the sampling frequency of the accelerometer on your smartphone is 200 Hz. Up to what frequency can you measure acceleration signals ?

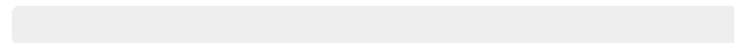
200 Hz



0%

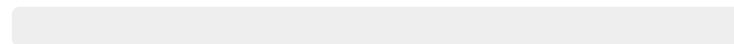
0 votes

✓ 100 Hz



0%

0 votes

It depends on the length  
of the measurement

0%

0 votes