

LAB 1 9/4/02

①

Login

run virtual bench

Set buffer size to 500 pts

Set Timebase to 1 sec/div

Set Volts/div to 1V

Note: Be sure Measure is set to Ch1

Simpson 450 function generator

Black Cable to Analog In Ch 1 black connector

Red red connector

Jumper from Black Dig out to black Ch1 IN

Frequency set to 1

0 dB Amplitude

Range Hz X1

DC Offset Off

Save File1.txt with current settings as above

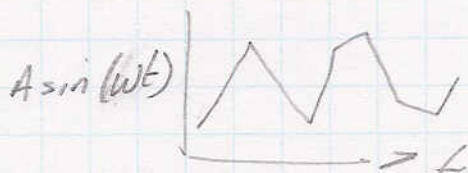
Set timebase to 10,000 samples/sec

$$(50 \text{ pts/div}) / (10,000 \text{ pts/sec}) = \frac{5}{1,000} \frac{\text{pts}}{\text{sec}} = 5 \text{ msec/div}$$

Vary function generator frequency

< 500 Hz sine wave appears smooth

> 1000 Hz sine wave becomes jagged



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Set time base to 2.5 kHz

Adjust function generator to 100 Hz

Save File2.txt with current settings

Adjust time base to 500 Hz

sine wave appears jagged

Save File3.txt

Adjust time base to 250 Hz use zoom P to enlarge

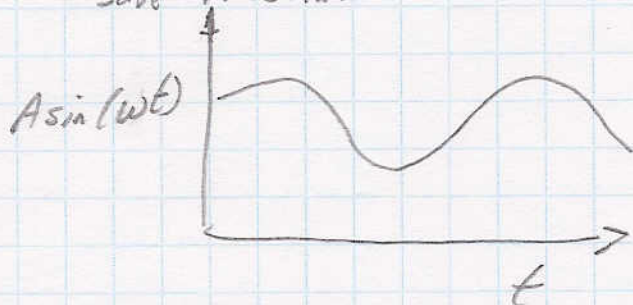
graph does not resemble a sine wave

Save File4.txt



Adjust time base to 100 Hz

Save File5.txt

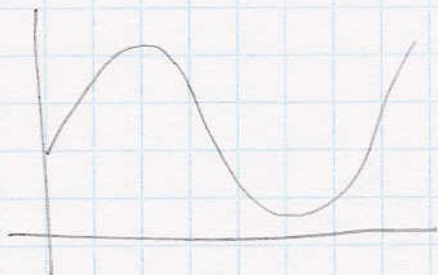


Appears smooth

Period = 2.29 sec

Aliased!

Adjust time base to 50 Hz



Appears Smooth

Period = 2.21 sec

Aliased!

Save File6.txt

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Adjust sensitivity to 10 V/div

Set Attenuation to 0.1 0.10

← Should have been 1.0

under Edit → channel Setting Analog tab  
note Volts/div changed to 1 V/div from 10 V/div

Set timebase to 100 s/s

Adjust function generator to 1 Hz, -30 dB Attenuation  
Only press X1 and -30 dB buttons

Save File 7.txt

Reduce Amplitude of sine wave ~ 50%

← not needed

Save File 8.txt

Reduce Attenuation to 0.01

Note 100 mV/div

✓ good example of Quantization

Save File 9.txt