

UNIVERSITY OF TORONTO
Faculty of Arts and Science

FIRST YEAR PHYSICS LAB
PRACTICAL TEST

Calculators without stored data are permitted
No other aids are allowed.

All experimental observations must be recorded in PEN in the exam booklet and data must be plotted (using pen *or* pencil) on the graph paper provided. You are expected to record and analyze your data in the same manner as is normally expected in the lab.

SPEED OF SOUND IN A SOLID

Set the oscilloscope to measure the time t between:

- when the square wave excites the driver transducer
and

- when the pickup transducer registers the sound wave.

Measure t as a function of the separation between the driver and the pickup d for five different values of d .

Plot your values and calculate the speed of sound in the rod.

Assume that the accuracy in measuring t with the oscilloscope is 5% of reading.

TEST STRATEGY ADVICE: Remember to quote units throughout, and use SI (MKS) units in your final result. You will be given credit for your estimate of errors; however it is more important that you have taken adequate data and produced a graph of the results, so leave your error calculations to the last. It is more important to have your results suitably plotted than to achieve the full set of five points. If one of the points doesn't fit your line or curve, it is advisable to repeat that measurement.