

Name: _____

Date: _____

Partner: _____

Permittivity of Free Space

Submit this worksheet along with a second sheet that contains both graphs and all linest results. Your nicely formatted Excel worksheet should be placed in my inbox on \\files (it should be titled "Permittivity-Smith&Jones.xls"), assuming that you and your partner are named Smith and Jones, respectively.

| Quantity | units | value | uncertainty |
|--|-------|-------|-------------|
| slope of m' vs. $V^{2/3}$ plot | | | |
| slope of T^2 vs m' plot | | | |
| Spring constant, k | | | |
| Length of plate, L | | | |
| Width of plate, W | | | |
| Permittivity of Free Space, ϵ_0 | | | |

What is the accepted value of the permittivity of free space?

In the space below, comment on your results. Do your measurements of the permittivity of free space agree with the accepted value? If not, what could be some possible reasons for the discrepancy?