In the following problems, vectors are written in boldface.

Consider a situation in which you have a linear dielectric (say plastic) which is placed into an external field **E**0.

Griffiths says that in a linear dielectric **D** = ϵ**E**. This is the main formula/result of Chapter 4.4.1. But it’s a little confusing - there are now several possible E-fields inside the dielectric, among them for example, **E**0, **E**induced, **E**induced + **E**0, **E**0 - **E**induced, and **E**induced - **E**0.  Which of these, if any, is the **E** in the above equation? Please choose one.

a) **E**0 b) **E**induced e) **E**induced + **E**0

d) **E**0 - **E**induced e) **E**induced - **E**0 f) None of these g) It depends

Please explain your answer briefly but clearly:



Consider two identical capacitors in parallel, as shown. Each one has charge Q.

Now keep this system isolated (it is NOT connected to a battery), and insert a dielectric material into the RIGHT-hand capacitor. How do the free charges(left) and (right) compare? Please choose one:


a) > b) = c) < d) Not enough information

How does compare with Q (the original charge on the left capacitor)? Please choose one.

a) > Q b) = Q c) < Q d) Not enough information

Please explain your answers to the previous 2 questions briefly but clearly:

In the capacitor setup above, after the dielectric is inserted, how does the total E field in the region between the plates compare? Please choose one:

a) Greater on the left b) Greater on the right c) Equal in both capacitors d) Not enough information

Please explain your answer briefly but clearly: