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Lecture 13 iq11 Review unit1a

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Selected problems

1. 15-h1extra. q + neutral atom (polarizability and induced dipole p')
2. 15-h3 Pair point charges + metal block
3. 15-h3 Metal ball +wire segment
4. 15-h3 Suspended conducting ball + charged rod
5. 15-h3 Insulator ball+metal block

Class Announcements:

- Please work through the summary of unit 1. Please call my attention if any line is not clear to you.
  This summary page will be distributed during the exam. No "cheat sheet "is allowed during the exam.
- Mark your calendar:
  1. Review unit1b: Wed 5-6pm, location TBA (please check email during the day)
  2. There will be an extended office hour: Thursday 1:30-3:30 pm, for Q and A.

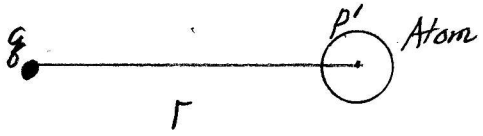
Summer-CA (summer assistant) for Chiu:

- We are looking for an undergrad computer assistant who can convert present handwritten classnotes (posted under the link Lectures in our homepage: http://www.ph.utexas.edu/~itiq/303Lsp13/chiu/) into quality editable efiles.
  - The text will be typed in Latex format.
  - The figures will be redrawn using an appropriate free download illustrator application so that each figure is editable.
- The applicant need to submit following documents together with his/her CV application to Lisa Gentry, ugaffairs@physics.utexas.edu The deadline for the application is on Friday, Feb. 15.

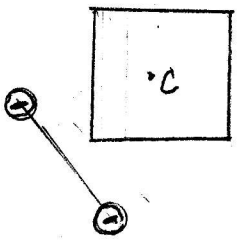
Clicker 15-h1extra. q + neutral atom (polarizability and induced dipole p')

	n' $E_0^{p'} = 2kp'/r^{n'}$	n $E_c^{p'} = \text{constant}/r^{n}$
1	2	4
2	2	5
3	3	4
4	3	5

What is the power ? in $F^{atom}_{q} = \text{const}/r^{?}$



Clicker 15-h3 Pair point charges + metal block



	direction of E_C^{pts}	direction of $E_C^{surfacecharges}$
1	↙	↗
2	↙	↙
3	↗	↗
4	↗	↙

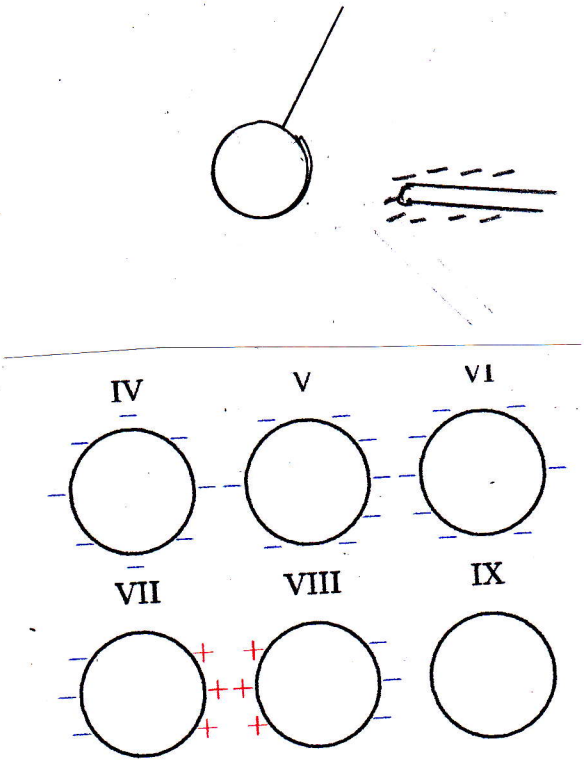
Clicker 15-h3Metal ball +wire segment

	α
1	$L^3/(2k)$
2	$L^3/(4k)$
3	$L^3/(8k)$

What is q? q=Q ....

Clicker 15-h3 Suspended conducting ball + charged rod

Given the suspended conducting ball carries a negative charge. Select the best charge distribution for the present case.



1	IV
2	V
3	VI
4	VII
5	VIII

Clicker 15-h3 Insulator ball+metal block

Determine the direction of $E_O^{polarizedcharges}$

	$E_O^{polarizedcharges}$(magniutde)	$E_O^{polarizedcharges}$(direction)
1	$kQ/(R+1.5w)^2$	to left
2	$kQ/(R+2w)^2$	to left
3	$kQ/(R+1.5w)^2$	to right
4	$kQ/(R+2w)^2$	to right