Board Meeting Gamma:

Electrostatic Field Due to Point Charges

in YOUR VOICE*

PHYSICS 204
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This Page (of 3): Our customary procedures for Board Meetings
Page 2 (of 3): The Physics Problem for this Board Meeting

***PAGE 3 (of 3) : Today's special *VOICES* variation on our customary Board Meeting**

A) Take at least one large white board for each group.

With as much clarity, completeness, color, vivacity and verity as possible,

On group white boards, respond to all the PROBLEMS.

You may certainly use more than one white board per group.

B) Leave AT LEAST 45 minutes to 1 hour for the following:

Gather in an approximate circle, all Boards facing in.

Discuss the Boards. Note that the Instructor, however, will play a noticeably minimal role. Whenever s/he is silent and whenever you wonder what to discuss, do the following:

i. Begin by attempting to identify and reconcile disagreements among boards,

ii. Freely but respectfully follow whatever conceptual/conversation paths emerge from the attempt to reconcile boards.

iii. Emphasize Depth over Breadth:

Once the class discovers that it is disagreement or confusion over a particular and fundamental point--

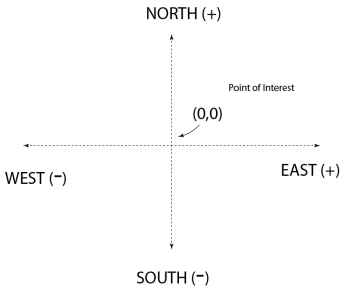
whether or not this point was originally intended for discussion--

STICK WITH THE CONCEPT UNTIL YOU GROW EMOTIONAL INVESTED, BUT

iv. Do ***not*** interrupt colleagues.

I) E-FIELDS FROM *POINT CHARGES*.

Two ***point-charges*** of differing magnitudes are held stationary in an enormously spacious x-y plane.



The strengths and locations of the charges are organized into a table, below.

A researcher places an instrument called a 'field detector' at the point **(3,-3)** (not the origin). The detector is designed to measure electrostatic field magnitudes and directions.

Name	Charge	x-Coordinate	y-Coordinate
Q1	5	5	0
Q2	-2	10	0

Location of Interest:
(3, -3)
(NOT the origin)

Note: All coordinates are measured and given in **meters**; the (very very large) charge magnitudes are given in **Coulombs**.

Also Note: The Coulomb constant for electrostatic interaction can be very reasonably approximated by this value:

$$K_e \approx 9 \times 10^9 \frac{Nm^2}{C^2}$$

1.Draw a neat and clear sketch of the situation, as you understand it. Your sketch must express a clear decision as to which direction will be designated positive and which direction will be negative.

2. COMPUTE THE MAGNITUDE & DIRECTION OF THE E-FIELD AT POINT (3, -3) -- due to both of the given point charges. This is the purpose of the whole problem.

II) Take any and/or all of the above physics problem and
RE-WRITE it
so that you actually feel a human connection
to the material itself.

RE-WRITE any or all aspects
of the physics problem
so that you actually feel that
something related to the problem
actually speaks in some kind of
more relatable or safer or more empowering
voice TO YOU.

Consider the terms below as possible jumping off points--either as points of connection or points of alienation:

“charge”, “field”, "point”, “unit vector”,"test charge” , "component", "magnitude", "interaction", "attract", "repel", "force", "action-at-a-distance".

III) Now answer your own question.