Physics 302
Winter Quarter 1991
February 8, 1991
George Williams

N = 255

2

SECOND MIDTERM

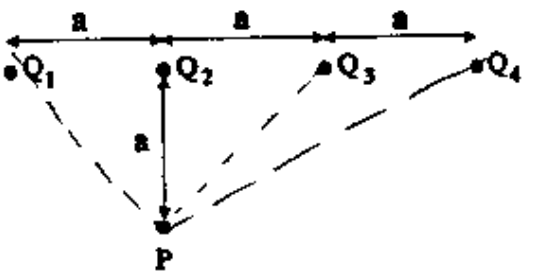
Name (print) Mario I Molina Name(signed)_____

Discussion Instructor (circle one): Davis DeTienne Hamed Molina Paul Zhang

Discussion Section #_____

SHOW ALL WORK!!!!!
REPORT ALL NUMBERS TO THREE SIGNIFICANT FIGURES!
Use the conversion constants and data given on the front page.

Four charges are arranged in a line as shown. Calculate the electric potential at P, in volts, for the values of charges and a given.



$Q_1 = +2.00 \times 10^{-6}$ C
$Q_2 = -3.25 \times 10^{-6}$ C
$Q_3 = +4.25 \times 10^{-6}$ C
$Q_4 = -8.20 \times 10^{-6}$ C
a = 3.00 cm

$$V(P) = \frac{KQ_1}{\sqrt{2}a} + \frac{KQ_2}{a} + \frac{KQ_3}{\sqrt{2}a} + \frac{KQ_4}{\sqrt{5}a}$$

$$= \frac{K}{a}\left[\frac{Q_1}{\sqrt{2}} + \frac{Q_2}{1} + \frac{Q_3}{\sqrt{2}} + \frac{Q_4}{\sqrt{5}}\right]$$

$$= -7.49 \times 10^{5}\ (V) \quad //$$

signs : (2) each
fr's : (5) pts. each
number : (8)
the E field (r') (-10)