PHYS 212 In-Class Problem Solving Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Define electric potential, V using electric potential energy, U.

2. Express electric potential, V at a distance r from a point charge, q.

P17. In Fig. [24-33](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c24/halliday9118/halliday9088c24/halliday9088c24xlinks.xform?id=halliday9088c24-fig-0033), what is the net electric potential at point *P* due to the four particles if *V* = 0 at infinity, *q* = 5.00 fC, and *d* = 4.00 cm? (f=femto=10-15)



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| http://edugen.wiley.com/edugen/courses/crs4957/common/art/pixel.gif |
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| http://edugen.wiley.com/edugen/courses/crs4957/common/art/pixel.gif |
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P85: In Fig. [24-62](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c24/halliday9118/halliday9088c24/halliday9088c24xlinks.xform?id=halliday9088c24-fig-0062), we move a particle of charge +2*e* in from infinity to the *x* axis. How much work do we do? Distance *D* is 4.00 m.



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|  | P88. Two charges *q* = +2.0 *μ*C are fixed a distance *d* = 2.0 cm apart (Fig. [24-64](http://edugen.wiley.com/edugen/courses/crs4957/halliday9118/halliday9088c24/halliday9118/halliday9088c24/halliday9088c24xlinks.xform?id=halliday9088c24-fig-0064)). (a) With *V* = 0 at infinity, what is the electric potential at point *C*? (b) You bring a third charge *q* = +2.0 *μ*C from infinity to *C*. How much work must you do? (c) What is the potential energy *U* of the three-charge configuration when the third charge is in place? |

