

Physics 102  
Quiz # 6  
Chapter 25

Name: Solution

Id:

Sec. #:

If the electric potential at point A is 27 V and the electric potential at point B is -67 V, how much work would you have to do to move a charge of  $-8.0 \mu\text{C}$  from point A to point B?

$$V_A = 27 \text{ V}$$

$$V_B = -67 \text{ V}$$

$V_A$   
•  
A

$V_B$   
•  
B

$$V_f = V_B \quad ; \quad V_i = V_A$$

$$\Rightarrow V_B - V_A = \Delta V = -67 - 27 = -94 \text{ V}$$

$$W \text{ "by the electric field"} = -\Delta U = -q \Delta V$$

$$W_{\text{applied}} = -W \text{ "by the electric field"} \\ = q \Delta V$$

$$W_{\text{applied}} = (-8.0 \times 10^{-6}) \times (-94) \\ = +7.52 \times 10^{-4} \text{ J}$$