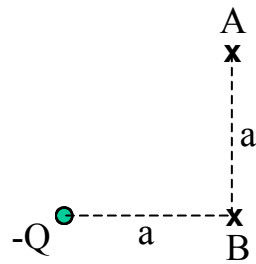
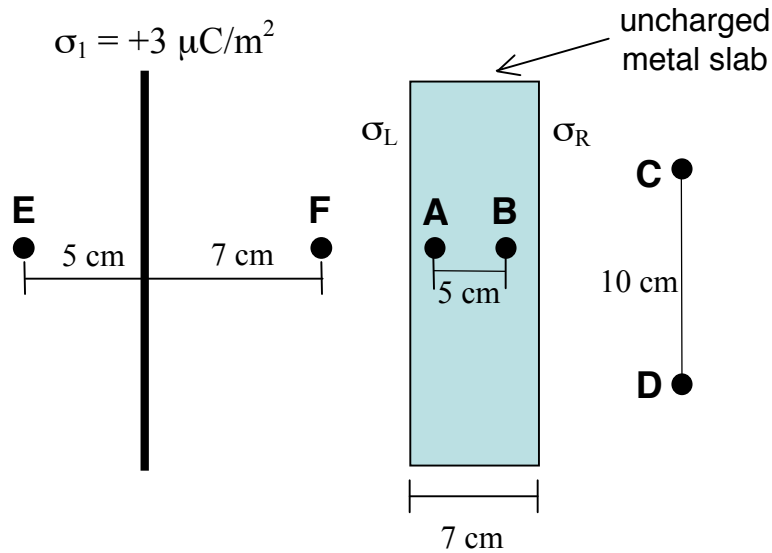


- 1) What is the sign of the potential difference between points A and B in the diagram below? (The charge  $-Q$  is negative.)

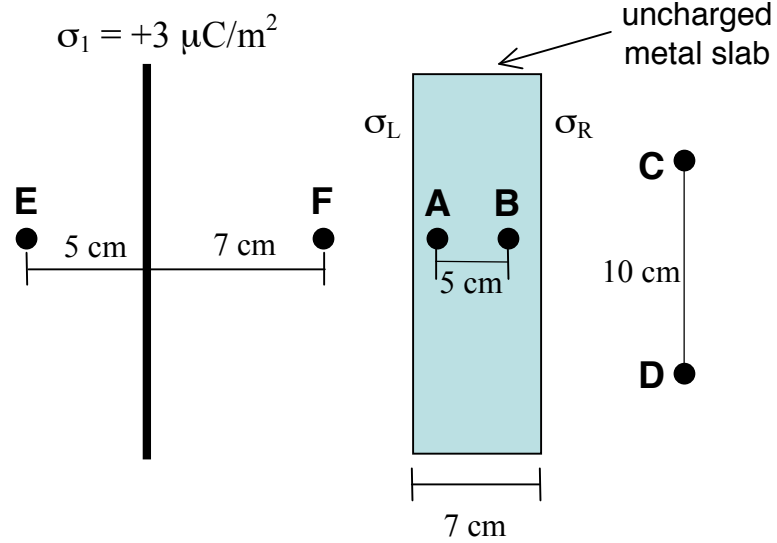


- (a)  $V_A - V_B < 0$       (b)  $V_A - V_B = 0$       (c)  $V_A - V_B > 0$

The picture below shows an infinite plane with uniform charge density  $\sigma_1 = +3 \mu\text{C}/\text{m}^2$  to the left of an uncharged metal block of infinite area and width 7 cm.



- 2) What is the potential difference  $V_{CD} = V_C - V_D$  between points **C** and **D** which are separated by 10 cm in the vertical direction? Provide a brief but clear argument supporting your answer. [4]



3) What is the potential difference  $V_{AB} = V_B - V_A$  between points **A** and **B** inside the conducting slab? [4]

4) What is the potential difference  $V_{EF} = V_F - V_E$  between points **F** and **E**? [8]