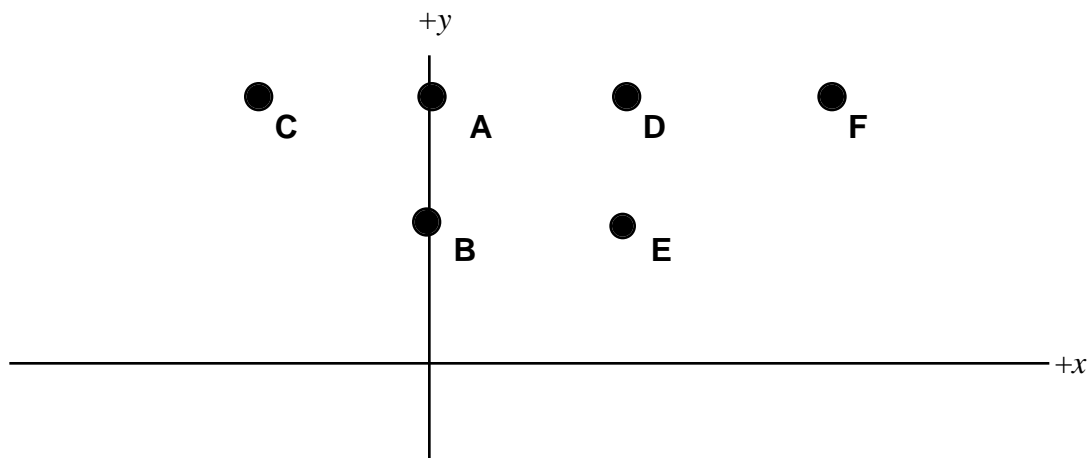


## Uniform Electric Field—Potential Energy of a Negative Charge<sup>155</sup>

We have a large region of space that has a uniform electric field in the  $+x$  direction ( $\Rightarrow$ ). At the point  $(0,0)$  m, the electric field is  $30 \mathbf{i}$  N/C and the electric potential is 100 volts.

Rank the points specified below on the basis of the electric potential energy of a single negative charge of  $-5$  C that may be placed at these points.

**A:**  $(0, 6)$  m    **B:**  $(0, 3)$  m    **C:**  $(-3, 6)$  m    **D:**  $(3, 6)$  m    **E:**  $(3, 3)$  m    **F:**  $(6, 6)$  m



Greatest   1\_\_\_\_\_   2\_\_\_\_\_   3\_\_\_\_\_   4\_\_\_\_\_   5\_\_\_\_\_   6\_\_\_\_\_   Least  
 Or, the  $-5$  C charge would have the same electric potential energy at all of these points. \_\_\_\_\_  
 Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed

Sure

Very Sure

1      2      3      4      5      6      7      8      9      10

<sup>155</sup> C. Hieggelke