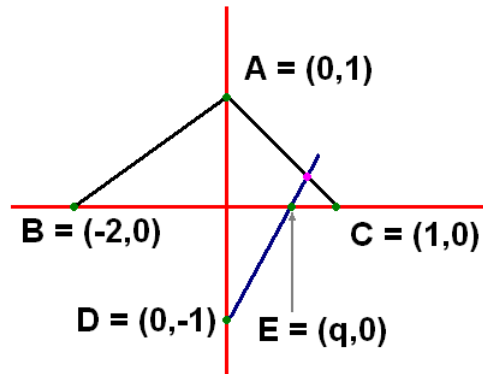


DRAWING FOR PROBLEM 3



The problem is to show that **DE** and **AC** meet at a point which is on the segment joining **A** to **C**; it does not suffice to show that the lines **DE** and **AC** have a point in common. As indicated by the drawing, the open segment joining these two points is just the set of all points that are on **AC** and in the first quadrant (both coordinates positive). Notice that the line **DE** also appears to meet the line **AB** (in fact, they always do so), but these two lines do not meet on the segment joining **A** to **B**.

Note also that if $q < 0$ then the lines **DE** and **AB** meet at a point which is on the segment joining **A** to **B**. Furthermore, in this case if the lines **DE** and **AC** have a point in common then this point is not on the segment joining **A** to **C**.