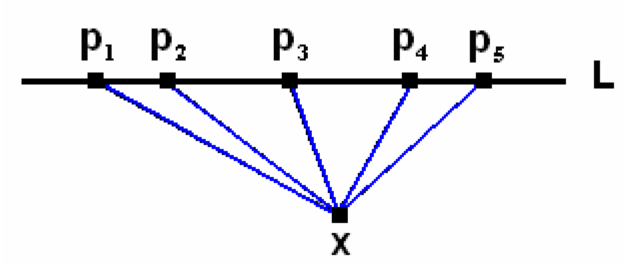
FIGURES FOR SOLUTIONS TO SELECTED EXERCISES

II : Vector algebra and Euclidean geometry

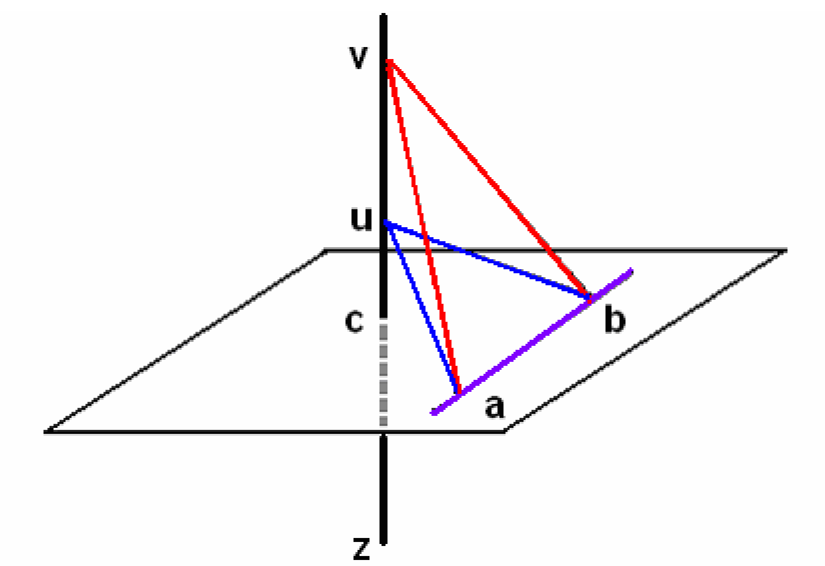
II.1 : Approaches to Euclidean geometry

II.1.4.



The objective of this exercise is to prove that the lines $\mathbf{xp}_1$, $\mathbf{xp}_2$, ***etc.*** are distinct**.**

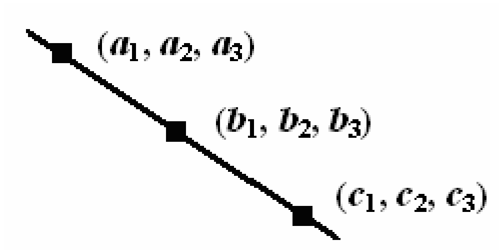
II.1.7.



The objective of this exercise is to prove that the planes **abu** and **abv** are distinct**.**

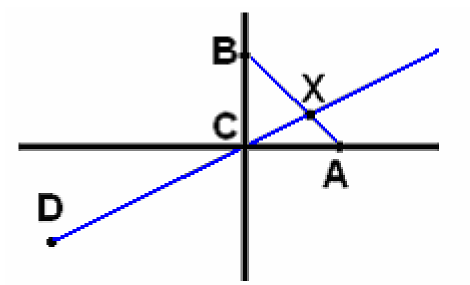
II.2 : Synthetic axioms of order and separation

II.2.1.



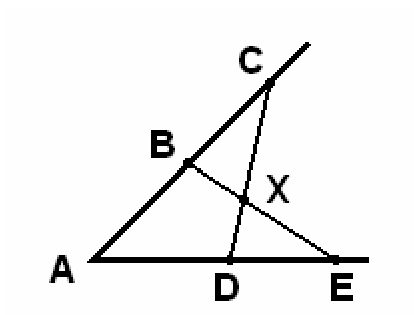
The line is contained in the plane $y = d$, where $d = a_2 = b_2 = c_2$, and the objective of this exercise is to prove that (b_1, b_2, b_3) is between (a_1, a_2, a_3) and (c_1, c_2, c_3).

II.2.2.



The points **A, B, C, D** are plotted as given, the objective of this exercise is to prove that that the lines **AB** and **CD** meet in some point **X,** and this point satisfies the order relations **A*****X*****B** and **D*****C*****X.**

II.2.3.



The objective of this exercise is to prove that the lines **BE** and **CD** meet in some point **X,** and this point satisfies the order relations **C*****X*****D** and **B*****X*****E.** It might be helpful to use specific points **A, B, C, D, E** when trying to understand this problem; for example, try **A** = $(0, 0)$, **B** = $(1, 1)$, **C** = $(3, 3)$, **D** = $(2, 0)$, **E** = $(4, 0)$.