

The due date for this lab will be provided by your lecturer or recitation instructor. Late submissions will not be accepted.

You are encouraged to discuss this assignment with other students and with the instructors, but the work you hand in should be your own.

For helpful background material, see the web page

<http://sites.math.rutgers.edu/courses/251/Maple/Lab1/Vectors.html>

For this lab, the data you will be given will consist of coordinates for three points,  $p$ ,  $q$ , and  $r$ , in  $\mathbb{R}^3$ . Then  $\vec{pq}$  will denote the vector directed *from*  $p$  *to*  $q$  and  $\vec{pr}$  will denote the vector directed *from*  $p$  *to*  $r$ . The vector  $\vec{v}$  will be  $\vec{pq} \times \vec{pr}$ , the cross product (vector product) of the two vectors.  $T$  will be the triangle in  $\mathbb{R}^3$  whose vertices are  $p$ ,  $q$ , and  $r$ .

### Instructions

- **Use Maple to:**
    - Compute  $\vec{pq}$ ,  $\vec{pr}$ , and  $\vec{v}$ .
    - Sketch these three vectors and the triangle  $T$  in one picture.
  - **Hand in a printout of your work. In this printout:**
    - Label all pages with your name and section number. Also, please *staple together* all the pages you hand in.
    - *Clean up your submission by removing the instructions that had errors.*
  - **Include in the work that you hand in:**
    - A printout of all Maple instructions you have used. Identify clearly in your printout the components of the vectors  $\vec{pq}$ ,  $\vec{pr}$ , and  $\vec{v}$ . (These identifications can be inserted by hand on your printout.)
    - A printout of a picture of the three vectors and the triangle  $T$ . The picture should include labeled axes and should show the geometry of the situation well. Label the points  $p$ ,  $q$ , and  $r$  in your picture. Label the vector  $\vec{v}$  in your picture. Label the triangle  $T$  in your picture. (These labels can be inserted by hand on your printout.)
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