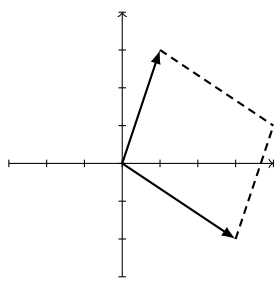
Linear Algebra
Quiz 7

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Use a determinant to find the area of the parallelogram depicted.



$$\begin{vmatrix} 3 & 1 \\ -2 & 3 \end{vmatrix} = 9 - (-2) = 11.$$

2. Use cofactor expansion to find the determinant.

$$\begin{vmatrix} 1 & 2 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 3 & 1 \end{vmatrix}$$

Use 1st column, then 1st row, then 1st row: $\begin{vmatrix} \underline{1} & 2 & 0 & 0 \\ \underline{0} & 1 & 0 & 0 \\ \underline{0} & 0 & 1 & 0 \\ \underline{0} & 0 & 3 & 1 \end{vmatrix} = 1 \cdot \begin{vmatrix} \underline{1} & \underline{0} & \underline{0} \\ 0 & 1 & 0 \\ 0 & 3 & 1 \end{vmatrix} - 0 + 0 - 0 =$

$1 \cdot \left(1 \cdot \begin{vmatrix} \underline{1} & \underline{0} \\ 3 & 1 \end{vmatrix} - 0 + 0\right) = 1 \cdot (1 \cdot (1 \cdot 1)) = 1.$