Cross Product (Section 8) **Version C**
Rensselaer Calculus Skills Practice Page

No calculators will be allowed and no partial credit will be given.

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1. Find the cross product of $\vec{\mathbf{r}} = \langle 1, -1, -2 \rangle$ and $\vec{\mathbf{s}} = \langle 3, 4, -2 \rangle$.
2. Find the magnitude of the cross product of the vectors $\vec{u} = \langle -2, -3, -2 \rangle$ and $\vec{v} = \langle 0, 1, 2 \rangle$.
3. Find a non-zero vector orthogonal to both $\vec{u} = \langle -1, -1, 3 \rangle$ and $\vec{v} = \langle 0, 2, -1 \rangle$.
4. Find a unit vector orthogonal to both $\vec{u} = \langle 2, -2, -1 \rangle$ and $\vec{v} = \langle 2, -2, -2 \rangle$.
5. Find the area of the triangle with vertices $\mathbf{P}\,(2, 2, -1)$, $\mathbf{Q}\,(2, 3, -2)$ and $\mathbf{R}\,(4, -3, 5)$.
6. Find the area of the parallelogram defined by the vectors $\vec{u} = \langle 4, 5, 4 \rangle$ and $\vec{v} = \langle 2, 2, 2 \rangle$.

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Answer Key Rensselaer Calculus Skills Practice Page, Fall 2007

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1. $\langle 10, -4, 7 \rangle$
2. 6
3. $\langle -5, -1, -2 \rangle$ or $\alpha\langle -5, -1, -2 \rangle$ for any $\alpha \neq 0$
4. $\pm\langle \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}, 0 \rangle$
5. $\frac{3}{2}$
6. $2^{\frac{3}{2}}$