# Cross product, II

Math 251 Calculus 3

September 20, 2013

# Distributing and the cyclic relation

# Warm-up, II

Compute some cross prods

# Some setup for classifying planes

Recall:

- Each ordered pair of points in $\mathbf{R}^3$ determines a vector. How is this vector determined? How do you get its entries?

New fact/definition:

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- A vector is *contained* in $\mathcal{P}$ if both its head and its tail (and hence, all the point on the vector's "body") are in $\mathcal{P}$.

## Warm-up for Workshop 03

- Choose a pair of orthogonal vectors and draw them in standard position. Your vectors must not be multiples of $\hat{\imath}$ or $\hat{\jmath}$, but I would advise you to choose vectors with $z$-entry 0—then, you can get away with drawing $\mathbf{R}^3$ as a plane viewed along the positive $z$-axis. *Hint.* Use the dot product to make sure your vectors really are perpendicular.

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- Because your vectors are orthogonal, there is a rectangle based on these vectors (draw two more sides). Use the cross product–sine formula to verify that the area of the rectangle is equal to the length of the cross product of your vectors.

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