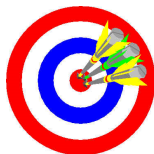


Linear Combinations and Spanning Sets (6.8)

Day Two

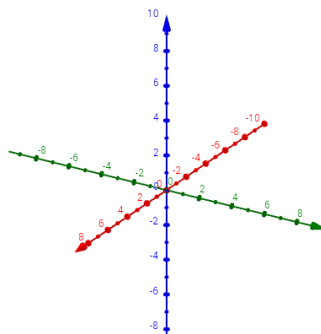


Math Learning Target:

"In R^2 and R^3 , I can determine if two (or more) vectors create a spanning set for a plane. I can determine if two (or more) points or vectors are coplanar. I can apply what I have learned in familiar and unfamiliar settings."

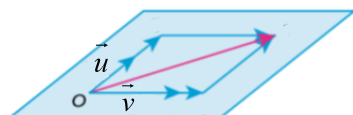
- Recall:** Linear Combination of Vectors (R^2)
Spanning Set (Basis) (R^2)
Standard Spanning Set (Standard Basis) (R^2 and R^3)

Example 1 Express $\overrightarrow{OP} = (2, -3, 4)$ as a linear combination of the standard unit vectors and illustrate geometrically.



Coplanar

When two or more nonzero, noncollinear vectors (or points) lie on the same plane, they are **coplanar**.



Example 2 Prove these vectors are coplanar: $\vec{a} = (1, 4, -2)$ $\vec{b} = (5, -3, 2)$
 $\vec{c} = (13, -17, 10)$

Spanning Set of a Plane (R^3)

Spanning Set of R^3