

Advanced Math

6-4

Vectors and Dot Products

Vector Operations - Given $\mathbf{u} = \langle a, b \rangle$ and $\mathbf{v} = \langle c, d \rangle$

Vector addition: $\mathbf{u} + \mathbf{v} =$

answer is scalar / vector

Scalar Multiplication : $k \cdot \mathbf{v} =$

answer is scalar / vector

Dot Product : $\mathbf{u} \cdot \mathbf{v} =$

answer is scalar / vector

Do vectors exhibit the field following properties?

Given $\mathbf{u} = \langle a, b \rangle$ and $\mathbf{v} = \langle c, d \rangle$ and $\mathbf{w} = \langle x, y \rangle$

_____ property; is $\mathbf{u} + \mathbf{v} = \mathbf{v} + \mathbf{u}$?

_____ property; is $\mathbf{u} \cdot \mathbf{v} = \mathbf{v} \cdot \mathbf{u}$?

_____ property; is $\mathbf{u} \cdot (\mathbf{v} + \mathbf{w}) = \mathbf{u} \cdot \mathbf{v} + \mathbf{u} \cdot \mathbf{w}$?

Vectors also have the following properties.

1) Dot by zero:

answer is scalar / vector

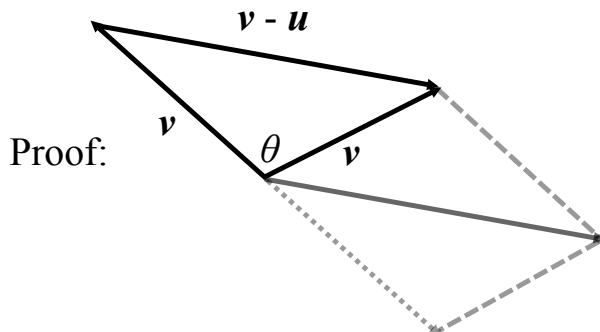
2) Vector Dot Squaring:

answer is scalar / vector

3) Scalar and Dot multiplication:

answer is scalar / vector

Angle between two vectors:



Find the angle θ between vectors.

*) $u = 2i - 5j$

$v = -i + 7j$

Orthogonal Vectors -

Assignment: pg. 553 2-34 even.
