

Quiz 2
Math 202 F01

Name: Solutions
01/28/15

An object is acted on by a force, in Newtons, of $\mathbf{F} = \langle 2, -1, 1 \rangle$ which causes it to move from point A to point B , whose coordinates, in meters, are $A = (2, 2, 1)$ and $B = (3, 1, 3)$.

1. What is the angle between the force and the displacement vectors?
(Your answer should involve an inverse trigonometric function.)

$$\vec{AB} = \langle 1, -1, 2 \rangle$$

$$\theta = \cos^{-1} \left(\frac{\vec{F} \cdot \vec{AB}}{\|\vec{F}\| \|\vec{AB}\|} \right) = \cos^{-1} \left(\frac{5}{\sqrt{6}\sqrt{6}} \right) = \cos^{-1} \left(\frac{5}{6} \right)$$

2. How much work was done by the force? Specify units.

$$W = \vec{F} \cdot \vec{AB} \\ = 5 \text{ Nm}$$