EM211 Statics Fall AY07
Quiz 2 Vector Components 1 SEP 2006
Name 516 394 46179 Period 4 5 6 .

Given

A wire is stretched between points A and B having coordinates A(1.25, -2.75, -0.95) and B(-0.75, -3.05, 1.85). The bracketed numbers indicate positions in x, y and z coordinates, (x,y,z).

Find

(a) The component form of the position vector $\mathbf{r}_{AB}$.

(b) The component form of the unit vector $\mathbf{e}_{AB}$

(c) The component form of the unit vector $\mathbf{e}_{BA}$

Relationships

$$\vec{r}_{AB} = (-0.75, -3.05, 1.85) - (1.25, -2.75, -0.95)$$

(a) $\boxed{\vec{r}_{AB} = -2.00\hat{i} - 0.300\hat{j} + 2.80\hat{k}}$

(b) $|\vec{r}_{AB}| = 3.45$ $\boxed{\hat{e}_{AB} = -0.579\hat{i} - 0.0869\hat{j} + 0.811\hat{k}}$

(c) $\hat{e}_{BA} = -\hat{e}_{AB}$ $\boxed{\hat{e}_{BA} = 0.579\hat{i} + 0.0869\hat{j} - 0.811\hat{k}}$