

Solutions: 21-5-2, 7-MK - 01 Pg

points

$$A = (0, 0, 3)$$

$$B = (3, 4, 4)$$

$$C = (-6, -3, 6)$$

$$D = (4, -3, 4)$$

vectors

$$\vec{AB} = \langle 3, 4, 1 \rangle$$

$$\vec{AC} = \langle -6, -3, 3 \rangle$$

$$\vec{AD} = \langle 4, -3, 1 \rangle$$

$$|\vec{AB}| = \sqrt{3^2 + 4^2 + 1^2} = 5.1 \text{ m}$$

$$|\vec{AC}| = \sqrt{(-6)^2 + (-3)^2 + 3^2} = 7.3 \text{ m}$$

$$|\vec{AD}| = \sqrt{4^2 + (-3)^2 + 1^2} = 5.1 \text{ m}$$

$$\hat{u}_{AB} = \frac{3}{5.1} \hat{i} + \frac{4}{5.1} \hat{j} + \frac{1}{5.1} \hat{k} = 0.588\hat{i} + 0.784\hat{j} + 0.196\hat{k}$$

$$\hat{u}_{AC} = \frac{-6}{7.3} \hat{i} + \frac{-3}{7.3} \hat{j} + \frac{3}{7.3} \hat{k} = -0.821\hat{i} - 0.411\hat{j} + 0.411\hat{k}$$

$$\hat{u}_{AD} = \frac{4}{5.1} \hat{i} - \frac{3}{5.1} \hat{j} + \frac{1}{5.1} \hat{k} = 0.784\hat{i} - 0.588\hat{j} + 0.196\hat{k}$$