
$$\frac{1}{3} \quad \underline{V}_1 = 15 \left(\frac{4}{5} \underline{i} + \frac{3}{5} \underline{j} \right) = 12 \underline{i} + 9 \underline{j}$$
$$\underline{V}_2 = 12 (-\cos 60^\circ \underline{i} + \sin 60^\circ \underline{j}) = -6 \underline{i} + 10.39 \underline{j}$$

$$\underline{V}_1 + \underline{V}_2 = 15 + 12 = \underline{27}$$

$$\underline{V}_1 + \underline{V}_2 = (12-6) \underline{i} + (9+10.39) \underline{j} = \underline{6 \underline{i} + 19.39 \underline{j}}$$

$$\underline{V}_1 - \underline{V}_2 = (12-(-6)) \underline{i} + (9-10.39) \underline{j} = \underline{18 \underline{i} - 1.39 \underline{j}}$$

$$\underline{V}_1 \times \underline{V}_2 = (12 \underline{i} + 9 \underline{j}) \times (-6 \underline{i} + 10.39 \underline{j})$$
$$= (12 \cdot 10.39 + 54) \underline{k} = \underline{178.7 \underline{k}}$$

$$\underline{V}_2 \times \underline{V}_1 = -(\underline{V}_1 \times \underline{V}_2) = \underline{-178.7 \underline{k}}$$

$$\underline{V}_1 \cdot \underline{V}_2 = (12 \underline{i} + 9 \underline{j}) \cdot (-6 \underline{i} + 10.39 \underline{j})$$
$$= 12(-6) + 9(10.39) = \underline{21.5}$$