

Special Problem 2-5.3

Determine if each of the following expressions results in a scalar field (S) a vector field (V) or neither (N).

$$g(\vec{r}) \nabla h(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\mathbf{A}(\vec{r}) \times \nabla \cdot \mathbf{B}(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\mathbf{A}(\vec{r}) \times \nabla \times \mathbf{B}(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\mathbf{A}(\vec{r}) \nabla \cdot \mathbf{B}(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\nabla \times \nabla g(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\nabla \times \nabla \nabla \cdot \mathbf{A}(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$h(\vec{r}) + \nabla g(\vec{r}) \cdot \mathbf{B}(\vec{r}) \quad \underline{\hspace{2cm}}$$

$$\nabla (h(\vec{r}) \nabla \cdot \mathbf{A}(\vec{r})) \quad \underline{\hspace{2cm}}$$

$$\nabla \times (h(\vec{r}) \nabla g(\vec{r})) \quad \underline{\hspace{2cm}}$$