

$$a = a^x e_x + a^y e_y + a^z e_z$$

$$\text{Reflect in } xy = a^x e_x + a^y e_y - a^z e_z$$

$$\text{Reflect in } yz = -a^x e_x + a^y e_y + a^z e_z$$

$$\text{Reflect in } zx = a^x e_x - a^y e_y + a^z e_z$$

$$\text{Reflect in plane } (x = y) = a^y e_x + a^x e_y + a^z e_z$$

$$\text{Reflect in } \mathbf{e}_x = a^x e_x - a^y e_y - a^z e_z$$

$$\text{Reflect in } \mathbf{e}_y = -a^x e_x + a^y e_y - a^z e_z$$

$$\text{Reflect in } \mathbf{e}_z = -a^x e_x - a^y e_y + a^z e_z$$