$$u^{*(1)} = \left\{ \frac{x}{L} \quad 0 \right\}$$

$$u^{*(2)} = \left\{ \sin\left(\frac{2\pi x}{3L}\right) \quad 0 \right\}$$

$$u^{*(3)} = \left\{ \frac{\pi y^2}{L^2}\sin\left(\frac{2\pi x}{L}\right) \quad -\frac{2y}{L}\sin^2\left(\frac{\pi x}{L}\right) \right\}$$

$$u^{*(4)} = \left\{ \frac{y^2}{L^2}\sin\left(\frac{\pi x}{L}\right) \quad \frac{x^2}{L^2}\sin\left(\frac{\pi y}{L}\right) \right\}$$