6.1a) $a_h = e^{(i\mu_h z)}$

$$\frac{\partial^3 a_h}{\partial z^3} = -i\mu_h^3 e^{(i\mu_h z)}$$

6.1i: $$-i\mu_h^3 e^{(i\mu_h z)} - \frac{ih[JJ]_h^2}{[JJ]_1^2} e^{(i\mu_h z)} = 0$$

6.1 b) $$-ie^{(i\mu_h z)}\left[\mu_h^3 - \frac{h[JJ]_h^2}{[JJ]_1^2}\right] = 0$$

$$\mu_h^3 = \frac{h[JJ]_h^2}{[JJ]_1^2}$$

$$\mu_h = \left(\frac{h[JJ]_h^2}{[JJ]_1^2}\right)^{1/3}$$

6.1 c) $\lambda_t = \frac{1 + K_1^2/2}{2\gamma^2}\lambda_u$ $\lambda_t = \frac{1 + K_3^2/2}{2\gamma^2}\lambda_u/3$

i)

$$\frac{\lambda_t}{\lambda_u}(2\gamma^2) = 1 + K_1^2/2 \qquad (6\gamma^2)\frac{\lambda_t}{\lambda_u} = 1 + K_3^2/2$$

$$\frac{4\gamma^2\lambda_t}{\lambda_u} = 1 + K_1^2 \qquad 3\left(\frac{4\gamma^2\lambda}{\lambda_t}\right) = 2 + K_3^2$$

$$3(1 + K_1^2) = 2 + K_3^2$$

$$K_3^2 = 3(1 + K_1^2) - 2$$

$$K_3 = \sqrt{3(1 + K_1^2) - 2}$$