HW 1   task 4

$$\delta_5 = t^3 - 6t$$

$$t = 2$$

at wheel 3, $V_3 = \delta_5° = 3t^2 - 6$

$$V_3 = \omega_3 r_3 \qquad \Rightarrow \qquad \omega_3 = \frac{V_3}{r_3} = \frac{3t^2 - 6}{r_3}$$

all points have the same velocity at r_3

$$V_c = \omega_3 R_3 = \frac{R_3}{r_3}(3t^2 - 6)$$

$$V_c = \omega_2 r_2 \quad \Rightarrow \quad \omega_2 = \frac{R_3}{r_3 r_2}(3t^2 - 6)$$

$$V_B = \omega_2 R_2 = \frac{R_2 R_3}{r_3 r_2}(3t^2 - 6)$$

$$a_{\tau_B} = \dot{V}_B R_2 = \frac{R_2^2 R_3}{r_2 r_3} 6t$$

$$a_{n_B} = \omega_2^2 R_2 = R_2 \left(\frac{R_3}{r_2 R_2}(3t^2 - 6) \right)^2$$

$$\alpha_B = \sqrt{a_{\tau_B} + a_{n_B}}$$

$$V_1 = \omega_2 R_2 = \frac{R_2 R_3}{r_2 r_3}(3t^2 - 6)$$

$$V_c = \omega_1 r_1 \quad \Rightarrow \quad \omega_1 = \frac{V_1}{r_1} = \frac{R_2 R_3}{r_1 r_2 r_3}(3t^2 - 6)$$

$$V_A = \omega_1 R_1 = \frac{R_1 R_2 R_3}{r_1 r_2 r_3}(3t^2 - 6)$$

$$V_4 = V_A = \frac{R_1 R_2 R_3}{r_1 r_2 r_3}(3t^2 - 6)$$

$$a_4 = \dot{V_4} = \frac{R_1 R_2 R_3}{r_1 r_2 r_3} 6t$$