

Svar 111022

1

(a)

$$W_r = \frac{Wl_1 + Fh}{L}$$
$$W_f = \frac{Wl_2 - Fh}{L}$$

(b) $a_{RWD} = \frac{\frac{\mu W l_1}{L - \mu h} - R_a - R_d}{m} = 4.9 \text{ m/s}^2$

2

(a) Se kursboken, ekvation 7.34-7.35

(b) $k_r l_2 = k_f l_1$

3

(a) Lutning på linje: 0.18

(b) $a_y/g \approx 0.35 \Rightarrow \delta_f = 1.93 - 0.85 = 1.08^\circ$

4

$$t = \frac{l_t}{6} = 2.3 \text{ cm}$$

5

$$Z_1 = 19.8 \text{ mm}$$

6

(a) $I_z \Omega_z = 2F_{y,\alpha}(l_2 - l_1) = 380 \text{ Nm}$

(b) $I_z \Omega_z = 2(F_{y,r}l_2 - F_{y,\alpha}l_1) \approx -330 \text{ Nm}$

7

(a) $K_{us} = \frac{W(l_2 - l_1)}{2LC_\alpha} \approx 4.4 \cdot 10^{-3}$

(b) $V = \sqrt{\frac{g}{4K_{us}L}} \approx 14.4 \text{ 1/s}$

8

$$K_b f \approx 68\%$$

$$K_b r \approx 32\%$$