Numerical answers to 4C9 (2011)

1. (a)

(i) $f_2 = C_{21}t_1 + C_{22}t_2 + C_{23}t_3$

(ii) $T_{31} - T_{13}$

(b) $-2\delta_{pr}$

2. (b) $A = \dfrac{M}{\pi}$

(c) $\phi_1 = -\dfrac{2Ma}{\pi r}\cos^3\theta$

3. (c)

(i) $\sigma_a = \dfrac{P}{\pi dt}$

$\tau = \dfrac{2Q}{\pi d^2 t}$

(ii) $P_Y = \sigma_Y \pi dt$

$P_Y = \dfrac{\sigma_Y \pi dt}{\sqrt{13}}$

(iii) $\dfrac{dP}{du} = \dfrac{\pi dth}{l}$