1a) resolving horizontally

$$T \sin 25 = 20$$

$$T = \underline{47.3 \text{ N}} \quad (3sf)$$

b) vertically:

$$\text{"}47.3\text{"} \cos 25 = W$$

$$W = \underline{42.9 \text{ N}} \quad (3sf)$$

2a) $\rightarrow$: $T_A \cos 50 = T_B \cos 35$

$$\frac{T_A \cos 50}{\cos 35} = T_B \qquad (1)$$

$\uparrow$ $T_A \sin 50 + (T_B) \sin 35 = 10g$

$$T_A \sin 50 + \frac{T_A \cos 50}{\cos 35} \cdot \sin 35 = 10g$$

$$T_A \left(\sin 50 + \frac{\cos 50 \sin 35}{\cos 35} \right) = 10g$$

$$1.216\, T_A = 10g$$

$$T_A = \underline{80.6 \text{ N}} \quad (3sf)$$

b) $$T_B = \frac{\text{Ans} \cos 50}{\cos 35}$$

$$= \underline{63.2 \text{ N}} \quad (3sf)$$

3) $\uparrow$: $R + F \sin 20 = 25g$ (1)

$\rightarrow$: $F \cos 20 = 0.4R$

$$R = \frac{F \cos 20}{0.4} \quad (2)$$

(2) into (1)

$$\frac{F \cos 20}{0.4} + F \sin 20 = 25g$$

$$F\left(\frac{\cos 20}{0.4} + \sin 20\right) = 25g$$

$$2.69F = 25g$$

$$F = \underline{91.0 \text{ N}} \ (3sf)$$

4/ perp. to the plane:

$$R = 10 \cos 26$$
$$= 8.99 \text{ N}$$

parallel to plane:

$$\mu R = 10 \sin 26$$

$$\mu(8.99) = 10 \sin 26$$

$$\mu = \frac{10 \sin 26}{8.99}$$

$$= \underline{0.49} \ (2sf)$$