

a) $r = 165 \text{ m}$

$$a_c = 7g = 7(9.8 \text{ m/s}^2) \\ = 68.6 \text{ m/s}^2$$

$$v_t = ?$$

$$a_c = \frac{v_t^2}{r}$$

$$68.6 \text{ m/s}^2 = \frac{v_t^2}{(165 \text{ m})}$$

$$v_t = 106 \text{ m/s}$$

b) $a_c = 68.6 \text{ m/s}^2$
 $m = 80.0 \text{ kg}$

$$F_c = m \cdot a_c$$

$$= (80.0 \text{ kg})(68.6 \text{ m/s}^2)$$

$$F_c = 5490 \text{ N}$$