

$$r$$

$$m$$

$$\theta$$

$$T = ?$$

$$v = ?$$

b.)

Horizontal

$$F_x = ma_x = T \sin \theta$$

Vertical

$$F_y = ma_y = T \cos \theta - mg = 0$$

b.)

~~$$F = mg \cos \theta$$~~

Vertical

~~$$F = mg \sin \theta$$~~

~~$$F = mg \sin \theta$$~~

Horizontal

~~$$mg \cos \theta = F$$~~

~~$$T = \sqrt{mg \cos \theta}$$~~

~~$$mg \cos \theta = \frac{mv^2}{r}$$~~

C.)

~~$$\sqrt{gr \cos \theta} = v$$~~

~~$$mg \cos \theta =$$~~

~~$$v = \frac{2\pi r}{T}$$~~

~~$$\sqrt{gr \cos \theta} = \frac{2\pi r}{T}$$~~

D.)

~~$$T = \frac{2\pi r}{\sqrt{gr \cos \theta}}$$~~

$$C.) \quad F_x = \frac{mv^2}{r} = T \sin \theta$$

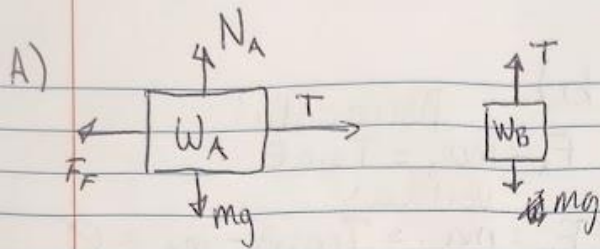
$$v = \sqrt{\frac{Tr \sin \theta}{m}}$$

$$v = \sqrt{\frac{\frac{mg}{\cos \theta} r \sin \theta}{m}}$$

$$T = \frac{mg}{\cos \theta}$$

D.)

$$v = \sqrt{gr \tan \theta}$$



B.) $F_x = -\mu m g + T = 0 \quad T = F_x + \mu m g$
 $m_A a_a \quad T - \mu W_a$

C.) $F_y = m g - T = 0 = W_b - T$

D.) $\mu = \frac{F}{N} \quad \frac{W_b}{W_a}$

e.) $F_A = 2ma = T - 2\mu W_A$
 $F_B = W_B - T = m_B a$

$T = W_B - m_B a$

$a = \frac{W_B - 2\mu W_A}{2W_A + W_B} (g)$

$2m_A a = W_B - m_B a - 2\mu W_A$

$a(2m_A + m_B) = W_B - 2\mu W_A$

$a = \frac{W_B - 2\mu W_A}{2m_A + m_B}$

e.) $\Sigma F = ma \quad a = \frac{\Sigma F}{m} \quad a \neq 0$
 $F_x = -\mu 2W_a + T - \mu 2W_a + W_b = a a$
 ~~$2W_a$~~