3-12-1	11/22/22	Isaac Abella

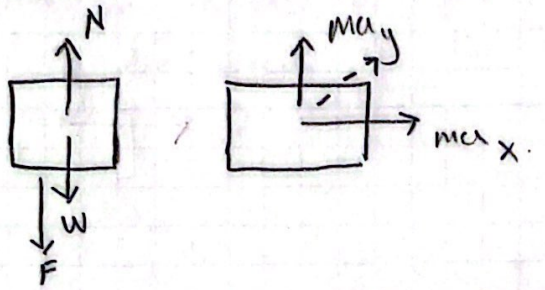
Problem: Ferris wheel

A) speed of the person

B) Normal Force at point A

C) Magnitude of horizontal force on the person at point A.

Represent:



Organize: 777N person

$r = 8.9\,m$

constant angular speed.

$F_N = 960\,N$.

Solutions:

A) $N = m(g + a)$

$= 960N = 777(9.81 + a)$

↳, $960N = 777N + 79.2$

$183N = 79.2a$

$a = 2.31$

$a = \frac{v^2}{r} = 2.31 = \frac{v^2}{8.9} = 4.53\ m/s$.

B) Forces in the X = $\boxed{N - W = ma_n \cos 30°}$

$0 = 777N = (79.2)(2.31)\cos 30$

$= \boxed{618N}$

C) magnitude of horizontal force

$= F_N = F\cos\theta = ma_n$

$= (79.2)(2.31)\sin 30$

$\boxed{= 91.4N}$

3-12-2	11/22/22	Isaac Abella.

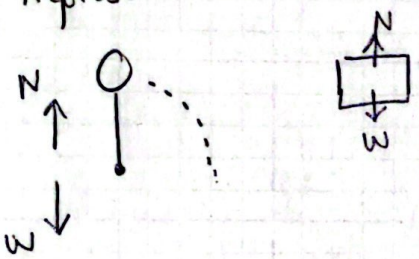
Problem: Pumpkin Swing.

A: Find linear speed of the WBP at the highest point of the circle?

B: A at a horizontal speed of 3.947 m/s, what's the magnitude of the tension in the string?

C: linear speed of the WBP at the lowest point in the circle if the tension in the string is 230.0 N?

Represent:



Organize

pumpkin = 33N

radius = 40cm

tension force = 32N

Solution

A:) $F_{tension} + W = ma_n$ $ma_n = 65/16.24$

$= 33N + 32N = ma_n$ $= 14.32 = a$

$V = 5.21$ $a = \frac{v^2}{r} = 14.2 = \frac{v^2}{40}$

$= 2.77 \text{ m/s}$ $= 27.7$

B) $3.947^2 / .40\text{cm} = 38.9 \text{ m/s}^2$

$T = ma = 38.9 (3.36)$

$= 130.7 \text{ N}.$

C) $230 - W = ma$ $58.93 = \frac{v^2}{.40}$

$= 198 = 3.36$ $= 4.855 \text{ m/s}$

$= 58.93 = a.$