

P9. Taewondo Tornado Kick is one of the most exciting moves to watch in martial arts. It takes 360-degree body rotation and hip thrust to deliver a very powerful kick.

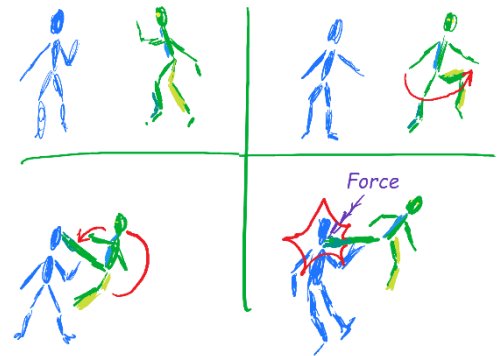
Write a program to calculate force at impact: ask a user for impact duration t (s), an effective kicking leg weight m (kg), an effective kicking leg length r (m), kick/blow execution time T (s) for full 360 rotation, calculate impact velocity v (in km/h and mph) and impact force f (in N and lb f) and report the calculations. Note: (1) impact force can be estimated from $f = m v / t$; (2) impact velocity can be estimated from $v = \omega r$, where ω is an angular velocity (rad/s); (3) kick execution time $T = (2\pi)/\omega$; (4) 1 mph = 1.61 km/h and 1 lb f = 4.45 N.

Hint: (1) find angular velocity (rad/s): $\omega = (2\pi)/T$;

(2) find impact velocity (m/s): $v = \omega * r$;

(3) find impact force (N): $f = m*v/t$;

(4) convert findings to proper units.



Example

=====

Impact duration (s): **0.008**

Effective weight (kg): **1.85**

Effective length (m): **1.02**

Blow execution time (s): **0.47**

$v = 49.09 \text{ km/h} = 30.49 \text{ mph}$

$f = 3,153.29 \text{ N} = 708.60 \text{ lbf}$

=====

Use P9_template.py. (The template is only to allow smooth autograding.)