Problem Set 8: **Rotational Motion**

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1 Linear vs Rotational Motion

For both linear and rotational representations, identify the following:

(a) position

(b) velocity

(c) acceleration

(d) kinetic Energy

2 Balance beam

There are two people standing on opposite ends of a 10 m long balance beam; person A 4 m to the left of the center, and person B 3 m to the right of the center. Person A has a mass of 60 kg. From afar, you notice that the balance beam is perfectly balanced in the center. Find the mass of person B.

3 Airplane propeller

The engine in a specified airplane is specified to have a torque of 60 Nm. This engine drives a 2.0-m-long, 40 kg propeller. On start-up, how long does it take the propeller to reach 200 rpm?

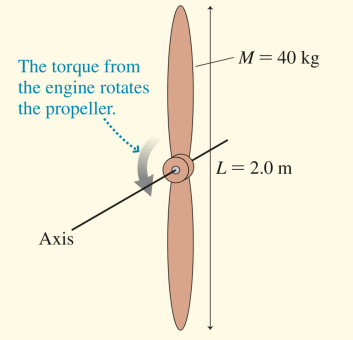

Figure 1: A rotating airplane propeller