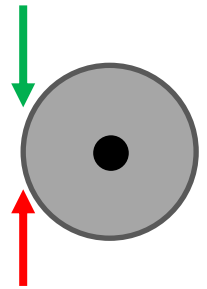


EXAMPLE: JUMPING INTO A MOVING DISC

EXAMPLE: A 200 kg disc 4 m in radius spins around a perpendicular axis through its center at 2 rad/s counter-clockwise. Find the new speed the disc would have if an 80 kg person (treat as a point mass):

- (a) Steps into the disc's edge with negligible speed;
- (b) Jumps into the disc, at its edge, with 9 m/s, directed towards the center;
- (c) Jumps into the disc's edge with 9 m/s, directed tangentially up, as shown in red;
- (d) Jumps into the disc's edge with 9 m/s, directed tangentially down (green);



PRACTICE: JUMPING OUT OF A MOVING DISC

PRACTICE: A 200 kg disc 2 m in radius spins around a perpendicular axis through its center, with a person on it, at 3 rad/s counter-clockwise. The person has mass 70 kg, is at rest (relative to the disc, that is, spins with it) at the disc's edge, and can be treated as a point mass. If the person jumps tangentially out of the disc with 10 m/s (relative to the floor), as shown by the red arrow, what new angular speed will the disc have as a result?

→ BONUS: If the person steps out into ice with negligible speed of his/her own, what speed would it have upon exiting?

