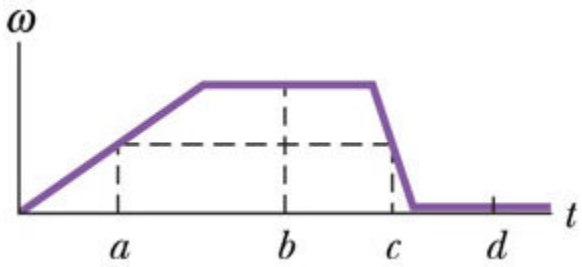
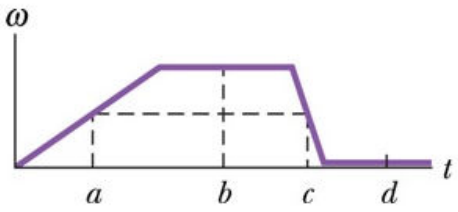
The figure is a graph of the angular velocity versus time for a disk rotating like a merry-go-round.



In the following questions, you will need to rank the instants in time. If multiple instants rank equally, use the same rank for each, then exclude the intermediate ranking (i.e. if objects A, B, and C must be ranked, and A and B must both be ranked first, the ranking would be A:1, B:1, C:3). If all instants rank equally, rank each as '1'.

For a point on the disk rim, rank the instants a, b, c, and d according to the magnitude of the tangential acceleration, greatest first.

For a point on the disk rim, rank the instants a, b, c, and d according to the magnitude of the tangential acceleration, greatest first.



a 2

b 3

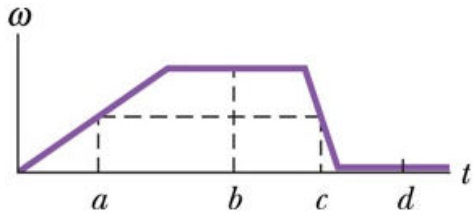
c 1

d 3

1. Greatest
2. Second greatest
3. Third greatest
4. Fourth greatest

For a point on the disk rim, rank the instants a, b, c, and d according to the magnitude of the radial acceleration, greatest first.

For a point on the disk rim, rank the instants a, b, c, and d according to the magnitude of the radial acceleration, greatest first.



a 2

b 1

c 2

d 4

1. Greatest
2. Second greatest
3. Third greatest
4. Fourth greatest

A force is applied to the rim of a disk that can rotate like a merry-go-round, so as to change its angular velocity. Its initial and final angular velocities, respectively, for four situations are: (a) –2 rad/s, 5 rad/s; (b) 2 rad/s, 5 rad/s; (c) –2 rad/s, –5 rad/s; and (d) 2 rad/s, –5 rad/s. Rank the situations according to the work done by the torque due to the force, greatest first. If multiple situations rank equally, use the same rank for each, then exclude the intermediate ranking (i.e. if objects A, B, and C must be ranked, and A and B must both be ranked first, the ranking would be A:1, B:1, C:3). If all situations rank equally, rank each as '1'.

Situation a 1

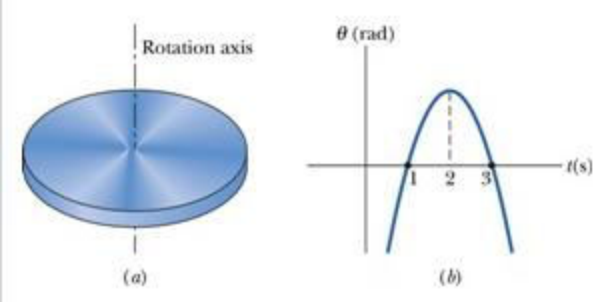
Situation b 1

Situation c 1

Situation d 1

1. Greatest
2. Second greatest
3. Third greatest
4. Fourth greatest

Figure (*b*) is a graph of the angular position of the rotating disk of Figure (*a*).



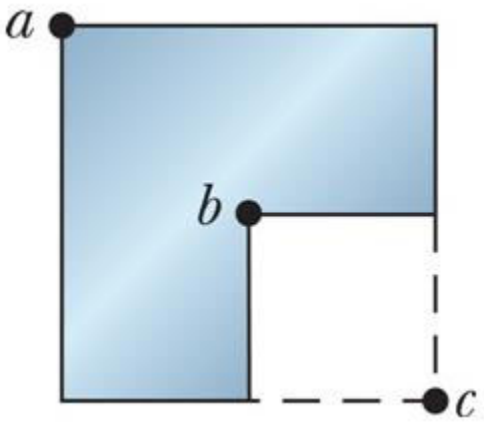
Is the angular velocity of the disk positive, negative, or zero at t=1 s?
Positive

Is the angular velocity of the disk positive, negative, or zero at t=2 s?
Zero

Is the angular velocity of the disk positive, negative, or zero at t=3 s?
Negative

Is the angular acceleration positive or negative?
Negative

The figure shows a uniform metal plate that had been square before 25% of it was snipped off. Three lettered points are indicated.



Rank them according to the rotational inertia of the plate around a perpendicular axis through them, greatest first. If multiple points rank equally, use the same rank for each, then exclude the intermediate ranking (i.e. if objects A, B, and C must be ranked, and A and B must both be ranked first, the ranking would be A:1, B:1, C:3). If all points rank equally, rank each as '1'.

Point a 2

Point b 3

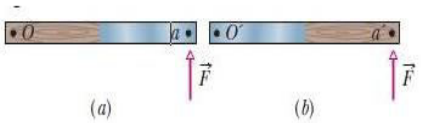
Point c 1

1. Greatest
2. Second greatest
3. Third greatest

Figure (*a*) shows a meter stick, half wood and half steel, that is pivoted at the wood end at *O*. A

force is applied to the steel end at *a*. In Figure (*b*), the stick is reversed and pivoted at the steel end at *O´*, and the same force is applied at the wood end at *a´*. Is the resulting angular acceleration of Figure (*a*) greater than, less than, or the same as that of Figure (*b*)?

Figure (*a*) shows a meter stick, half wood and half steel, that is pivoted at the wood end at *O*. A force $\vec{F}$ is applied to the steel end at *a*. In Figure (*b*), the stick is reversed and pivoted at the steel end at *O´*, and the same force is applied at the wood end at *a´*. Is the resulting angular acceleration of Figure (*a*) greater than, less than, or the same as that of Figure (*b*)?



- The resulting angular acceleration of Figure (*a*) is greater than that of Figure (*b*).
- The resulting angular acceleration of Figure (*a*) is less than that of Figure (*b*).
- The resulting angular acceleration of Figure (*a*) is the same as that of Figure (*b*).