

Answers to selected questions

Chapter 8

- Q6** No. Since the relation for the distance along the arc of a circle is equal to the radius times the rotational displacement in radians, the inner arc is smaller than the outer arc. Therefore the outer child's linear velocity is greater than that of the inner child.
- Q12** Yes, if the respective distances (lever arms) from the fulcrum are chosen properly. The ratio of the distances will be in the inverse ratio of the weights.
- Q18** No. A net torque produces an angular acceleration.
- Q24** No. Angular momentum is only conserved when there is no net torque.
- Q30** The direction of the angular momentum is perpendicular to the plane of the wheel at any instant, so in turning a corner the direction will change by 90° .
- Q36** Yes. The size of the torque transmitted to the rear wheel depends on which of the several sprockets is engaged with the chain because the moment arm changes.