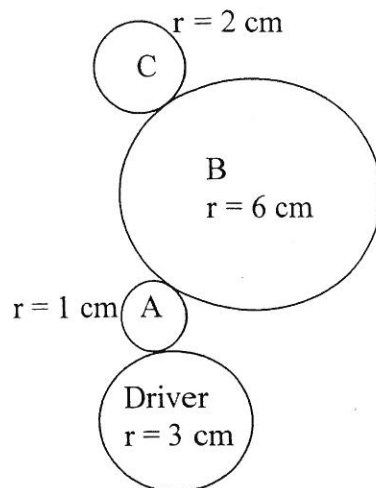
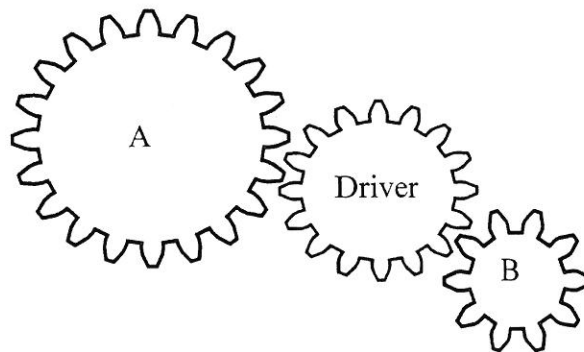


Speed Change in Motion Transmission Systems

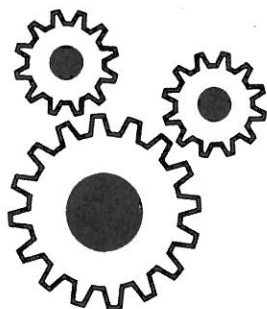
1. Consider the friction gears on the right.
 - a. What is the speed ratio of gear A?
 - b. What is the speed ratio of gear B?
 - c. What is the speed ratio of gear C?
 - d. Which gear will be the fastest?
 - e. Which gear will be the slowest?



2. Consider the gear train illustrated below. The driver gear rotates at a rate of 500 RPM.
 - a. What is the rotation speed of gear A?
 - b. What is the rotation speed of gear B?



3. In the gear train below, the larger gear rotates in the clockwise direction at a rate of 400 RPM. What is the speed and direction of rotation of the two small gears?



4. The illustration below shows the belt system for a car. Assume that the generator rotates in the clockwise direction. Give the direction of each part

Idler Pulley:

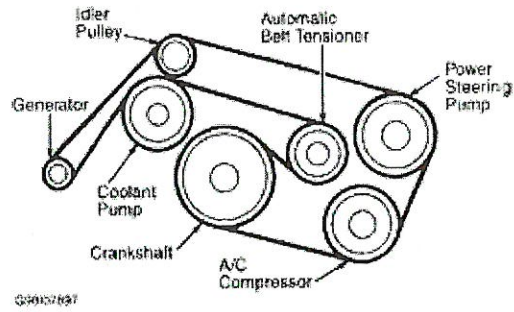
Automatic Tensioner:

Power Steering Pump:

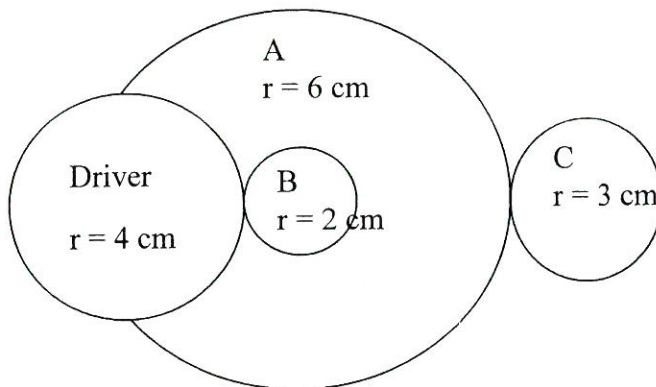
A/C Compressor:

Crankshaft:

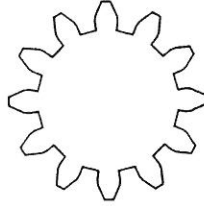
Coolant Pump:



5. Consider the friction gears below. The driver gear rotates in the clockwise direction at a rate of 800 RPM. Find the speed and direction of rotation of every other gear.



6. The gear illustrated below is used as a driver gear. Another gear will be added next to this gear.



- a. How many teeth should the second gear have if we want the speed ratio to be 3?
 - b. How many teeth should the second gear have if we want the speed ratio to be 0.75?
 - c. How many teeth should the second gear have if we want the speed ratio to be 0.1?
7. In the space below, draw a motion transmission system that satisfies all of the following criteria:
- The driver gear rotates at a rate of 200 RPM.
 - One gear rotates at a rate of 100 RPM.
 - One gear rotates at a rate of 600 RPM.
 - One gear rotates at a rate of 400 RPM, and this gear rotates in the same direction as the driver gear.

Note: your diagram does not need to be to scale, but you must indicate the size or number of teeth of each component.

