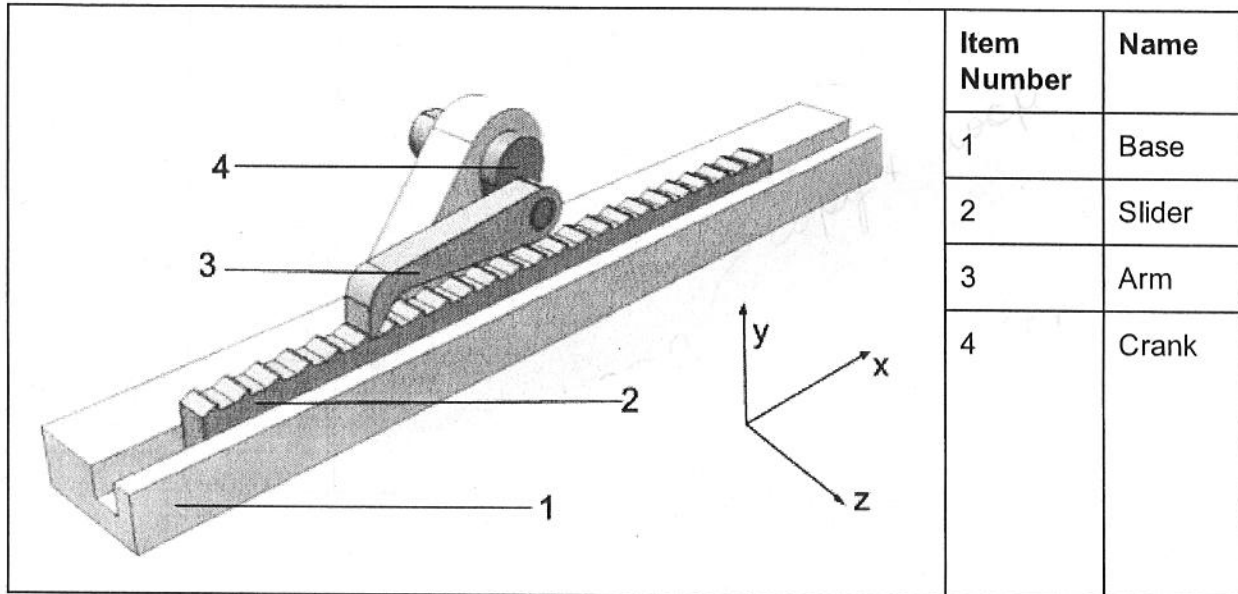


Analysis of Mechanisms

Mechanism #1

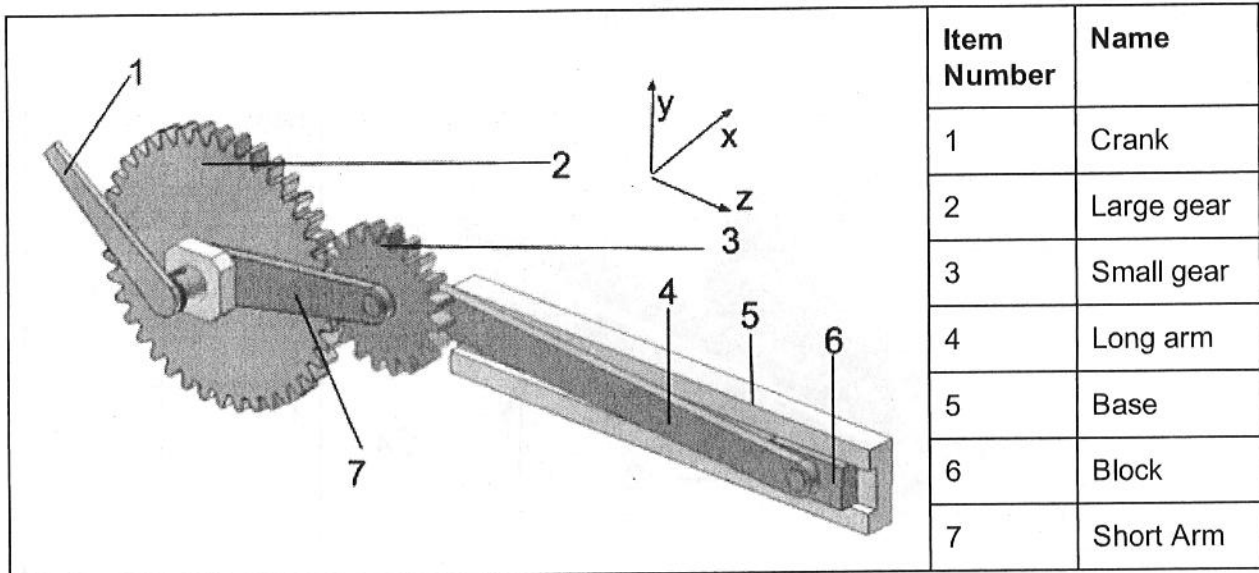
Consider the ratchet mechanism illustrated below. (You can view the animation at: <https://www.youtube.com/watch?v=GSABM0GR-j8>.)



- Which component is the
 - Driver component?
 - Driven component?
 - Intermediate component?
- Give the type of motion and direction of motion of the
 - Crank
 - Slider
- What type of guiding is provided by the:
 - Base?
 - Crank?
- Is this a motion transmission or motion transformation system? Justify your answer.
- Consider the link between the the arm and the crank. Explain why the link must be complete or partial.
- Is this mechanism reversible? Justify your answer.
- As it is currently set-up, the arm jumps ahead by 2 teeth with each rotation of the crank. What modification could be done in order for the arm to jump ahead 1 tooth with each rotation of the crank?

Mechanism #2

Consider the mechanism illustrated below. (You can view the animation at: <https://www.youtube.com/watch?v=QSRgQfbgLjI>.)



1. Give the type of motion and direction of motion of the
 - a. Crank
 - b. Block
 - c. Large gear
2. Why must the link between the crank and the large gear be complete?
3. Why must the link between the short arm and the small gear be partial?
4. Because of an error in manufacturing, the long arm is longer than it should be. What is a consequence of this error? How does it affect the functioning of the mechanism?
5. What part dictates the size of the short arm? Explain.
6. Over time, the block has started to get stuck in the base. What could be done to fix this issue?