CONCEPT REVIEW 58

Speed changes in motion transmission systems

Name: _____ Group: _____ Date: _____

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Complete this concept review handout and keep it as a record of what you have learned.

Definition

- A speed change occurs in a motion transmission system when *the driver does not turn at the same speed as the driven component or components.*

Speed changes in worm and worm gear systems

The greater the number of teeth on the gear, *the greater the decrease in speed.*

Speed changes in other motion transmission systems

Speed change	Friction gear systems Belt and pulley systems	Gear trains Chain and sprocket systems
Increase	Motion is transmitted *from one gear or pulley to a gear or pulley of smaller diameter.*	Motion is transmitted *from one gear or sprocket to another with fewer teeth.*
Decrease	Motion is transmitted *from one gear or pulley to a gear or pulley of larger diameter.*	Motion is transmitted *from one gear or sprocket to another with more teeth.*
No change	Motion is transmitted *between two gears or pulleys of the same diameter.*	Motion is transmitted *between two gears or sprockets with the same number of teeth.*

Calculation of speed ratio in a motion transmission system

$$\text{Speed ratio} = \frac{\text{Diameter or number of teeth of the 1st gear or pulley}}{\text{Diameter or number of teeth of the 2nd gear or pulley}}$$