

Student Name: _____

Unit No.

7

Part I. Place the letter of the key term next to the correct definition.

Term	Definition
	Gears that have the axes of the two shafts intersect and the tooth-bearing faces of the gears themselves are conically shaped. These gears are most often mounted on shafts that are 90 degrees apart, but can be designed to work at other angles as well.
	A device that splits the supplied torque two ways, allowing each output to spin at a different speed. Used frequently with drive trains that steer to allow for easier/more uniform turning.
	This does not control motion between components, but simulates mechanical motion by driving a constraint through a sequence of steps for a single component.
	A characteristic of a Microsoft Windows file that can be manipulated from an application or Microsoft Windows Explorer. Properties include author or designer and creation date, and may also be unique properties assigned by applications or users. Specifying properties can be useful when searching for part or assembly files.
	A gear with a small number of teeth designed to mesh with a rack.
	A bar of rectangular cross section with straight teeth on one side that mesh with teeth on the pinion.
	The simplest and most common type of gear. Their general form is a cylinder or disk.

A. Rack **B.** Drive Constraint **C.** Spur Gears **D.** Bevel Gears **E.** Pinion
F. Differential **G.** iProperties

Part II. Fill in the blanks.

_____ gears have teeth parallel to their axis of rotation and a cylinder pitch face. These are the most recognizable form of gear; when most people think of gears, they are usually thinking of these gears.

Rack gears are flat bars with straight gear teeth. A rack gear is normally combined with a spur gear, which is commonly referred to as the _____.

A worm drive is a setup consisting of a worm gear and a worm wheel meshing together. The worm gear resembles a _____, and is the driving gear in this setup. The primary advantage of a worm drive is the ability to get a large _____ in a relatively small package. Another advantage of a worm drive is its

resistance to _____; it is almost impossible to drive the worm with the worm wheel.

_____ gears are cone-shaped gears used in applications where a change in the axis of rotation is required. These gears mate together when their axes of rotation intersect. They are most often mounted on shafts which are 90-degrees apart, but can be made to work on other angles as well.

The most common type of differential has one _____ which is divided into two _____. Less commonly, a differential can have two _____ which combine to form one _____. Differentials consist of bevel gears mounted inside a _____.

Part III. Place the letter of the Inventor technical term next to the correct definition.

Term	Description
	Straight curve bounded by two endpoints. This tool on the Sketch toolbar chains line segments together and creates arcs tangent or perpendicular to existing curves. Segments and arcs are automatically joined by coincident constraints at their endpoints.
	Adds parametric dimensions that control sketch size. When dimensions are changed, the sketch resizes. Dimensional constraints may be expressed as numeric constants, as variables in equations, or in parameter files.
	A sketch consists of the sketch plane, a coordinate system, 2D curves, and the dimensions and constraints applied to the curves. A sketch may also incorporate construction geometry or reference geometry. Sketches are used to define feature profiles and paths.
	A construction feature that defines the parametric location of a sketch plane in 3D space. A _____ is useful when no planar face exists to use as a sketch plane; for example, when sketching on curved or toroidal faces. A _____ can be incorporated into dimension and constraint schemes.
	In a part or assembly, zooms and rotates the model to display the selected element planar to the screen or a selected edge or line horizontal to the screen. Not used in drawings.
	Projects geometry (model edges, vertices, work axes, work points, or other sketch geometry) onto the active sketch plane as reference geometry.
	Multiple instances of a placed or sketched feature arrayed in a specified pattern. Patterns are defined by type (rectangular or circular), orientation, number of features, and spacing between features.

A. Work Plane **B.** Line **C.** Project Geometry **D.** 2D Sketch **E.** General Dimension **F.** Look At **G.** Rectangular Pattern