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Mechanical engineering

QUESTION ONE

DRY FRICTION: is a force that opposes the relative lateral motion of two solid surfaces in contact. Dry friction is subdivided into *static friction* between non-moving surfaces, and *kinetic friction* between moving surfaces. With the exception of atomic or molecular friction, dry friction generally arises from the interaction of surface features, known as asperities

FLUID FRICTION: describes the friction between layers of a viscous fluid that are moving relative to each other.

QUESTION TWO

WEDGE is a triangular shaped tool, and is a portable inclined plane, and one of the six classical simple machines. It can be used to separate two objects or portions of an object, lift up an object, or hold an object in place. It functions by converting a force applied to its blunt end into forces perpendicular (normal) to its inclined surfaces. The mechanical advantage of a wedge is given by the ratio of the length of its slope to its width. Although a short wedge with a wide angle may do a job faster, it requires more force than a long wedge with a narrow angle.

SQUARE-THREADED SCREWS: The square thread form is a common screw thread form, used in high load applications such as lead screws and jackscrews. It gets its name from the square cross-section of the thread. It is the lowest friction and most efficient thread form, but it is difficult to fabricate.

JOURNAL BEARINGS: **Journal** or sleeve **bearings** make use of a pressure wedge of fluid that forms between the rotating shaft and the **bearing**. The portion of the shaft supported by the **bearing** is called the **journal** and is usually hardened for wear-resistance.