Hamilton-Senior lab-off-site learning packet day 2

Instructor Mark Hamilton **Date** _____

Program/Class AEM Sr. **Period** 5-8

State Indicator/Competency:

Competency 25.4: Interpret and apply information from prints and drawings.

Descriptors:

25.4.5 Identify the basic types and methods of internal and external screw thread representation.

Instructional Objective(s):

1: students will explain measurement with 80% accuracy

Materials:

Virtual machine shop

Method of Instruction:

Research

Activities:

Read through the hand out and answer the questions

Closure:

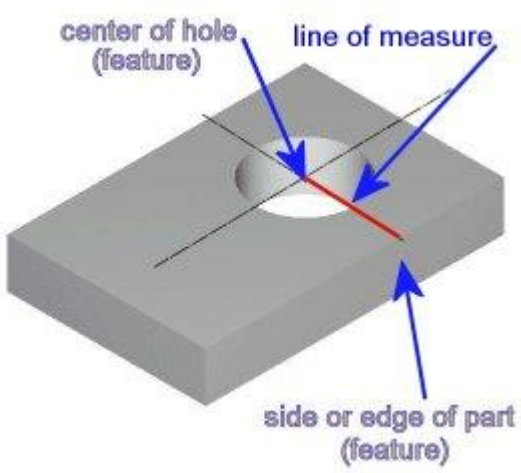
Answer the questions on the last page

Assessment:

Answer sheet will be collected and is worth 10 points

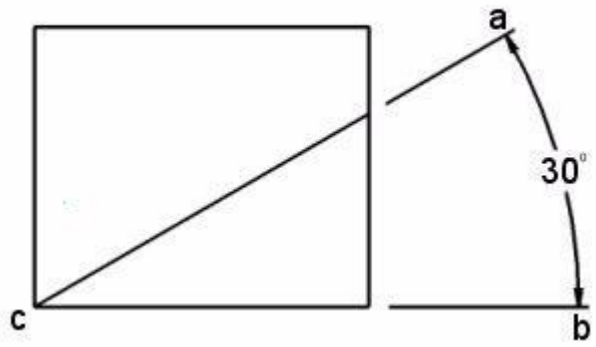
Measurement Fundamentals - 1: What is a Measurement?

Measurement is the process by which physical size may be determined. By measuring a piece of stock before machining it can determined if there is enough material for the machining process or if there is too much material for the process. Measuring the part while machining or measuring between the machining processes helps verify the accuracy of the machining process by comparing it to a blueprint or route sheet.



The most common type of measurement is linear measurement and begins with establishing a line of length to be measured. That line of measure starts at a reference point and ends at the measured point. Both the reference point and the measured point relate to a feature of the part being measured (a feature is a physical characteristic of the part but can sometimes be an unapparent datum). There is no direction component to linear measurement as the distance from the edge of the part (shown left) to the center of the hole is the same as the distance from the center of the hole to the edge. Either the hole center or the edge can be the measured point or the reference point

Another type of measurement is angular measurement. Angular measurement is the relationship between two features that share a common point or, explained differently, two surfaces that are not parallel. The figure shown below has two surface features (a and b) who's line extensions pass through the same point (c). Angular measurement uses degrees as the standard of measure and there are 360 degrees in one complete rotation of arc. Each degree has 60 subdivisions called minutes and each minute has 60 subdivisions called seconds. The Inch and the Metric System both use degrees as their angular measurement standard.



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Name_____

1. What is measuring?

2. What can be determined by measuring a piece of stock before machining?

3. When measuring a piece during the machining process what would the machinist be comparing their measurements to?

4. What is the most common type of measurement?

5. What is a second type of measurement?