

1. Define calibration (2 pts)

*Comparison between measurements: one of known magnitude or correctness and another measurement made in as similar way as possible with a second device.*

2. A gage block comparator has a stated range specification of 0.0 to 4.0 inches. Can it be used to calibrate a 115mm gage block? Why? (1.0 inch = 25.4 mm) (3 pts)

$$115 \text{ mm} \times \frac{1.0 \text{ in}}{25.4 \text{ mm}} = 4.53 \text{ inches}$$

*No, the comparator cannot be used to calibrate the gage block because the size of the block exceeds the maximum specification value.*

3. A measurement tool is found to be out of calibration, the following information is documented. Describe the importance of each aspect (why is documentation necessary) (5 pts)

| Key Information                          | Importance  |
|--|---|
| <i>Unique equipment ID number</i>        | <i>Ability to locate a specific tool</i>  |
| <i>Test points and measurement error</i> | <i>What was the calibrated range tested? What is the accuracy/precision of the calibration tool.</i>                |
| <i>As found and As left</i>              | <i>What were the initial calibration results? Was the tool adjusted/repared? Was it left in a calibrated state?</i> |
| <i>Adjustment/repairs</i>                | <i>Was the tool returned to a calibrated state – can it be used</i>   |
| <i>Evidence of mishandling, etc.</i>     | <i>Physical state of the equipment at the time the calibration was conducted.</i>                                   |