



King Fahd University of Petroleum & Minerals

جامعة الملك فهد للبترول والمعادن

## *Surveying - CE 260*

### Home Work #2

#### Problem 1

Write short essay about each of the following:

Pacing, Stadia, Substance bar, Cut tape, Standard conditions for steel tape, Invar tape, Hand level, Random errors, Normal tension, Systematic error, Random error associated with systematic error in tape measurements.

#### Problem 2

A 100-ft cut steel tape was used to measure between two property markers. The rear surveyor held 64 ft, while the head surveyor cut 0.17 ft. What was the distance between the markers?

#### Problem 3

A distance of 244.57 ft was measured along a 4% slope. Compute the horizontal distance.

#### Problem 4

You must lay out a rectangular commercial building 218.00 ft wide and 250.00 ft long. If the steel tape is 100.04 ft long (under standard conditions), what distances would be laid out?

**Problem 4**

**Compute the corrected horizontal distance.**

**Temperature = 37°C, Tape Length = 29.992 m, Slope Angle = -2°42' and Slope Measurement = 256.482 m**

**Problem 5**

**Compute the required layout distance.**

**Temperature = 10°C, Tape Length = 29.990m, and Required Horizontal Distance =300.00 m**

**Problem 6**

**A 50 m tape is used to measure between two points at the same level. The average weight of the tape per meter is 0.280 N. The measured distance is 78.128 m, with the tape supported at the ends only and with a tension of 110N. Find the corrected distance.**

**Problem 7**

**A 30-m tape has a mass of 524 g and is supported only at the ends with a force of 70 N. What is the sag correction in measuring 200 m. if gradient is 10 %?**