Dear students,

Please solve the following problems for Assignment #3 for your next DGD.

A 100 ft steel tape of cross-sectional area 0.0025 in.2, weight 2.3 lb, and standardized at 68°F is 99.992 ft between end marks when supported throughout under a 12-lb pull. What is the true horizontal length of a recorded distance AB for the conditions given (Assume horizontal taping and all full tape lengths except the last.)

| **Problem #** | **Recorded Distance AB** (ft) | **Average Temperature** (°F) | **Means of Support** | **Tension** (lb) |
|---|---|---|---|---|
| **1** | 86.06 | 68 | Throughout | 12 |
| **2** | 94.23 | 75 | Ends Only | 25 |

A 30-m steel tape measured 29.991 m when standardized fully supported under a 5.500-kg pull at a temperature of 20°C. The tape weighed 1.22 kg and had a cross-sectional area of 0.016 $cm^2$. What is the corrected horizontal length of a recorded distance AB for the conditions given

| **Problem #** | **Recorded Distance AB** (m) | **Average Temperature** (°C) | **Means of Support** | **Tension** (kg) |
|---|---|---|---|---|
| **3** | 16.302 | 25 | Ends Only | 7.9 |

determine the horizontal length of CD that must be laid out to achieve required true horizontal distance CD. Assume a 100-ft steel tape will be used, with cross-sectional area 0.0025 $in.^2$, weight 2.4 lb, and standardized at 68°F to be 100.008 ft between end marks when supported throughout with a 12-lb pull. (Assume horizontal taping and all full tape lengths except the last.)

| **Problem #** | **Required Horizontal Distance CD** (ft) | **Average Temperature** (°F) | **Means of Support** | **Tension** (lb) |
|---|---|---|---|---|
| **4** | 68.96 | 54 | Throughout | 20 |

**5-**

When measuring a distance AB, the first taping pin was placed 1.0 ft to the right of line AB and the second pin was set 0.5 ft left of line AB. The recorded distance was 236.89 ft. Calculate the corrected distance. (Assume three taped segments, the first two 100 ft each.)

GOOD LUCK,