

# TACHEOMETRIC SURVEYING

## SOLVED PROBLEMS

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#### Tacheometric Surveying Solved Problems

**Introduction** Tacheometric surveying is a method of surveying in which the horizontal and vertical distances between the instrument and the target are determined by measuring the angles of inclination and horizontal direction and the stadia intercept.

**Question 1** A tacheometer is set up at A and sighted on a target at B. The horizontal angle is  $30^\circ$ , the vertical angle is  $20^\circ$ , and the stadia intercept is 1.5 m. The instrument height is 1.2 m and the target height is 0.5 m. Determine the horizontal distance and elevation difference between A and B.

**Answer:** Horizontal distance  $AB = K \text{ stadia intercept} = 100 \times 1.5 \text{ m} = 150 \text{ m}$   
Elevation difference between A and B =  $(\sin \text{ of vertical angle } \times \text{ horizontal distance}) - (\text{instrument height} - \text{target height}) = (\sin 20^\circ \times 150 \text{ m}) - (1.2 \text{ m} - 0.5 \text{ m}) = 51.76 \text{ m}$

**Question 2** A tacheometer is set up at C and sighted on a target at D. The horizontal angle is  $60^\circ$ , the vertical angle is  $-15^\circ$ , and the stadia intercept is 2 m. The instrument height is 1.5 m and the target height is 1.2 m. Determine the horizontal distance and elevation difference between C and D.

**Answer:** Horizontal distance  $CD = K \text{ stadia intercept} = 100 \times 2 \text{ m} = 200 \text{ m}$   
Elevation difference between C and D =  $(\sin \text{ of vertical angle } \times \text{ horizontal distance}) - (\text{instrument height} - \text{target height}) = (\sin -15^\circ \times 200 \text{ m}) - (1.5 \text{ m} - 1.2 \text{ m}) = -51.76 \text{ m}$

**Question 3** A tacheometer is set up at E and sighted on a target at F. The horizontal angle is  $90^\circ$ , the vertical angle is  $10^\circ$ , and the stadia intercept is 1.2 m. The instrument height is 1.3 m and the target height is 0.8 m. Determine the horizontal distance and elevation difference between E and F.

**Answer:** Horizontal distance  $EF = K \text{ stadia intercept} = 100 \times 1.2 \text{ m} = 120 \text{ m}$  Elevation difference between E and F = (sin of vertical angle  $\times$  horizontal distance) - (instrument height - target height) =  $(\sin 10^\circ \times 120 \text{ m}) - (1.3 \text{ m} - 0.8 \text{ m}) = 20.79 \text{ m}$

**Question 4** A tacheometer is set up at G and sighted on a target at H. The horizontal angle is  $120^\circ$ , the vertical angle is  $-20^\circ$ , and the stadia intercept is 1.8 m. The instrument height is 1.4 m and the target height is 1.1 m. Determine the horizontal distance and elevation difference between G and H.

**Answer:** Horizontal distance  $GH = K \text{ stadia intercept} = 100 \times 1.8 \text{ m} = 180 \text{ m}$  Elevation difference between G and H = (sin of vertical angle  $\times$  horizontal distance) - (instrument height - target height) =  $(\sin -20^\circ \times 180 \text{ m}) - (1.4 \text{ m} - 1.1 \text{ m}) = -63.64 \text{ m}$

**Question 5** A tacheometer is set up at I and sighted on a target at J. The horizontal angle is  $150^\circ$ , the vertical angle is  $5^\circ$ , and the stadia intercept is 1.6 m. The instrument height is 1.6 m and the target height is 1 m. Determine the horizontal distance and elevation difference between I and J.

**Answer:** Horizontal distance  $IJ = K \text{ stadia intercept} = 100 \times 1.6 \text{ m} = 160 \text{ m}$  Elevation difference between I and J = (sin of vertical angle  $\times$  horizontal distance) - (instrument height - target height) =  $(\sin 5^\circ \times 160 \text{ m}) - (1.6 \text{ m} - 1 \text{ m}) = 14.66 \text{ m}$

### **Test Expert Speaking Practice for CELPIP: Enhanced Preparation for Language Proficiency**

The Canadian English Language Proficiency Index Program (CELPIP) is a standardized English language proficiency test designed for individuals seeking to immigrate or work in Canada. Its Speaking component assesses the candidate's ability to communicate effectively in various situations. To excel in this section, it is crucial to engage in speaking practice under the guidance of experienced test experts.

**Question 1: What is the significance of speaking practice for CELPIP? Answer:**

Speaking practice allows candidates to familiarize themselves with the test format, develop their fluency, and gain confidence in their ability to express themselves clearly and effectively. By practicing with test experts, they can receive constructive feedback and identify areas for improvement.

**Question 2: How can test experts enhance speaking practice? Answer:**

Test experts possess a comprehensive understanding of the CELPIP Speaking criteria and can provide targeted guidance to candidates. They simulate the test environment, assess performance, and offer specific suggestions to improve pronunciation, grammar, vocabulary, and overall communication skills.

**Question 3: What are the benefits of guided speaking practice? Answer:**

Guided speaking practice helps candidates:

- Develop fluency and accuracy in speaking
- Improve their ability to organize their thoughts and ideas
- Enhance their pronunciation and intonation
- Expand their vocabulary and use it effectively
- Gain confidence and reduce test anxiety

**Question 4: How can candidates find test experts for speaking practice?**

**Answer:** Candidates can connect with test experts through online platforms, language training centers, or educational institutions. It is important to choose an expert who has a proven track record of success and aligns with the candidate's learning style and preferences.

**Question 5: What is the recommended frequency of speaking practice?**

**Answer:** Regular and consistent speaking practice is essential. Candidates should aim to practice for at least 30 minutes per session, several times a week. The more they engage in speaking under the guidance of experts, the more they will improve their skills and confidence for the CELPIP Speaking test.

**What's Going On Chords Ver 5 by Marvin Gaye**

**What is "What's Going On" by Marvin Gaye?**

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"What's Going On" is a iconic protest song written and performed by Marvin Gaye, released in 1971. It serves as the title track of his album of the same name.

### **What are the chords for "What's Going On" Version 5?**

Version 5 of "What's Going On" features different chord progressions from the original version. The main chords used are:

- Am (A minor)
- G (G major)
- F (F major)
- Dm (D minor)
- E7 (E7 dominant seventh)

### **Can you provide a chord chart for Version 5?**

**Verse 1:** Am G F Dm E7 Am

**Chorus:** Am G7 C F Dm G7 C F E7 Am

**Verse 2:** Am G F Dm E7 Am

**Chorus:** Am G7 C F Dm G7 C F E7 Am

**Bridge:** Dm G7 C F G7 C F

**Outro:** Am G7 C F Dm G7 C F E7 Am

### **How does Version 5 differ from other versions?**

Version 5 of "What's Going On" differs from other versions in its use of a harmonica solo and a more upbeat tempo. It also features a slightly different chord progression in the bridge section.

### **What is the significance of "What's Going On" Ver 5?**

Version 5 of "What's Going On" is a testament to the versatility of Marvin Gaye's music. It demonstrates his ability to create different interpretations of the same song,

while maintaining its powerful message of social and political commentary.

### **Unveiling the Art of Needlework: The Embroidery Stitch Bible**

The embroidery stitch bible, a comprehensive guide to the world of embroidery, empowers stitchers with a vast collection of stitches to elevate their needlework creations. From classic to modern, these stitches cater to various embroidery techniques and artistic expressions.

**Q: What is the Embroidery Stitch Bible?** A: The Embroidery Stitch Bible is a book or online resource that presents an extensive library of embroidery stitches. It provides detailed instructions, diagrams, and variations to guide needleworkers in mastering the intricacies of each stitch.

**Q: Is it Essential for Embroiderers?** A: While not a strict requirement, the Embroidery Stitch Bible is an invaluable tool for embroiderers of all levels. It expands their stitch repertoire, inspires creativity, and allows them to tackle more intricate and expressive designs.

**Q: What Types of Stitches Does it Cover?** A: The Embroidery Stitch Bible typically covers a wide range of stitches, including basic stitches like running stitch and back stitch, as well as more complex stitches such as cross stitch, satin stitch, and bullion stitch. Some books may also include specialized stitches for specific embroidery styles, such as needle painting or whitework.

**Q: How Can I Use the Embroidery Stitch Bible?** A: The Embroidery Stitch Bible can be used as a reference guide for practicing new stitches or as a source of inspiration for your embroidery projects. It provides step-by-step instructions on how to create each stitch, making it suitable for both beginners and experienced embroiderers.

**Q: What are the Benefits of Using an Embroidery Stitch Bible?** A: Utilizing an Embroidery Stitch Bible offers numerous benefits. It enhances stitch accuracy, expands stitch vocabulary, sparks creativity, and enables embroiderers to execute more detailed and refined designs, ultimately elevating the quality and artistry of their needlework creations.

[test expert speaking practice for celpip](#), [whats going on chords ver 5 by marvin gaye](#), [the embroidery stitch bible](#)

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