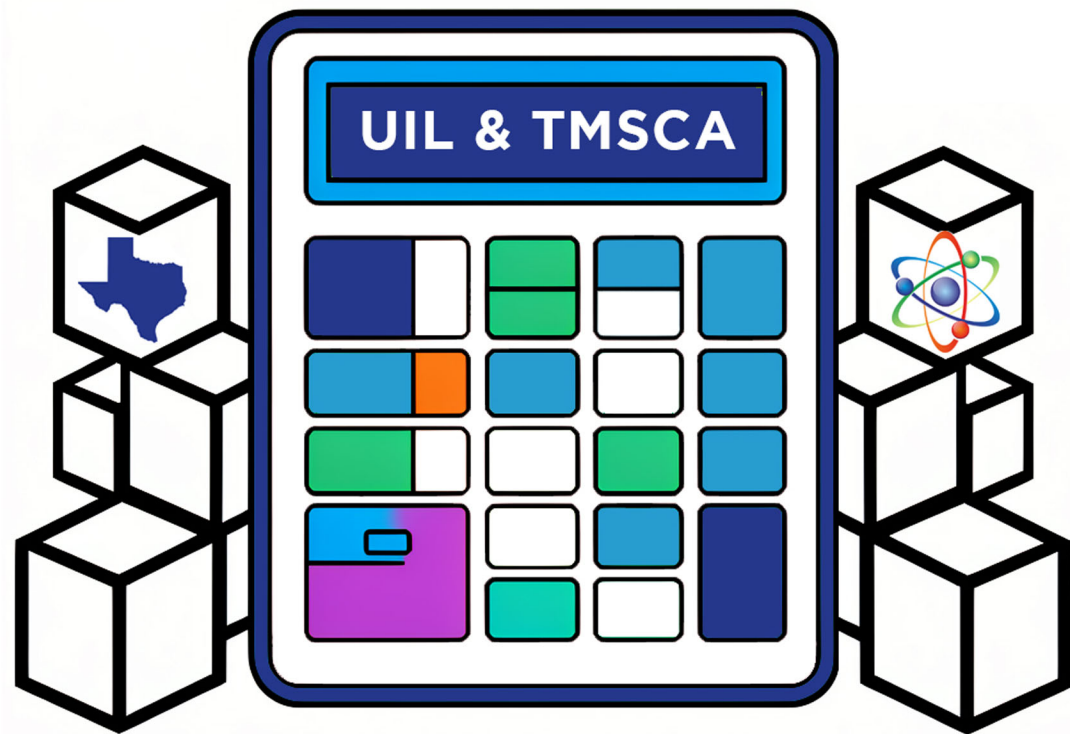




Educating the leaders of tomorrow



TEXAS UIL & TMSCA CALCULATOR APPS



High School Practice Tests

WRITTEN BY DAVID BOURELL



Calculator Applications

DIRECTIONS

DO NOT OPEN THE TEST UNTIL INSTRUCTED TO BEGIN

I. For **Calculator Applications** rules and scoring—See **UIL Constitution**

II. How to write answers

A. Show three significant digits for all problems except stated problems as noted below.

1. Examples (* means correct but not recommended)

Correct: 12.3, 123, 123.*, 1.23x10*, 1.23x10^{0*}
1.23x10¹, 1.23x100¹, .0190, 0.0190, 1.90x10⁻²

Incorrect: 12.30, 123.0, 1.23(10)2, 1.23.102, 1.230x10²,
1.23*10², 0.19, 1.9x10⁻², 19.0x10⁻³, 1.90E-02

2. Plus or minus one digit error in the third significant digit is permitted.

B. For stated problems

1. Except for integer, dollar sign, and significant digit problems, as detailed below, answers to stated problems should be written with three significant digits.

2. Integer problems are indicated by (integer) in the answer blank. Integer problems answers must be exact, no plus or minus one digit, no decimal point or scientific notation.

3. Dollar sign (\$) problems should be answered to the exact cent, but plus or minus one cent error is permitted. Answers must be in fixed notation. The decimal point and cents are required for exact-dollar answers.

4. Significant digit problems are indicated by underlined numbers and by (SD) in the answer blank. See the UIL Constitution and Contest Manual for details.

III. Some symbols used on the test

A. Angle measure: rad means radians; deg means degrees.

B. Inverse trigonometric functions: arcsin for inverse sine, etc.

C. Special numbers: π for 3.14159 ...; e for 2.71828 ...

D. Logarithms: Log means common (base 10); Ln means natural (base e); exp(u) means e^u.

Calculator Applications Scoring Sheet

5× (Last Problem Attempted)	+	+	+
7× (Number Incorrect)	-	-	-
2× (Number Incorrect SDs)	-	-	-
TOTAL SCORE			

Tie Breaker: Points scored on Stated and Geometry Problems	+	+	+
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26J-31. $\sqrt{\frac{\pi}{\sqrt{40.2 + 17.5}}} \times \left[\frac{1}{(6.51 - 2.95)^2} + \frac{1}{(15.6 + 7.04)^2} \right]$ ----- 31=_____

26J-32. $\frac{(3.73 + 4.29)^2}{\sqrt{82.5 - 27}} + \frac{7.21}{\sqrt{9.39 + 12.3}}$ ----- 32=_____

26J-33. $\frac{[(5.77 - 5.4)(0.788/0.229)]^{1/2}}{(0.512)^2 + (0.131 + 0.621)^2 + 0.486}$ ----- 33=_____

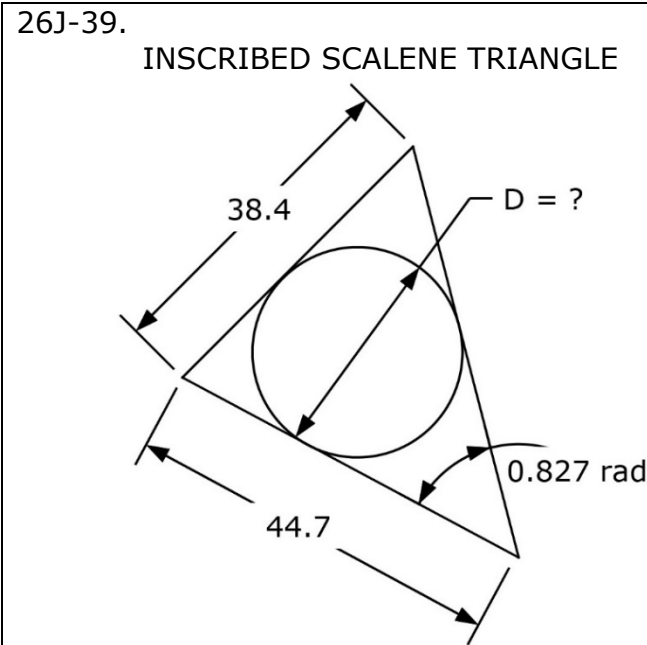
26J-34. $\frac{\sqrt{(0.3)/\{(0.261)/\sqrt{0.729}\}}}{0.106 + (0.279)(2.75)} + \{1.18 + 1.34\}^{1/2}$ ----- 34=_____

26J-35. $\frac{\left[\frac{3.37 \times 10^{-4}}{558}\right]^2 + \sqrt{\frac{(0.208)(0.14)}{(3.59 \times 10^{24})}} + (2.28 \times 10^{-12})}{0.935 + \sqrt{(-0.646)(-0.666)}}$ ----- 35=_____

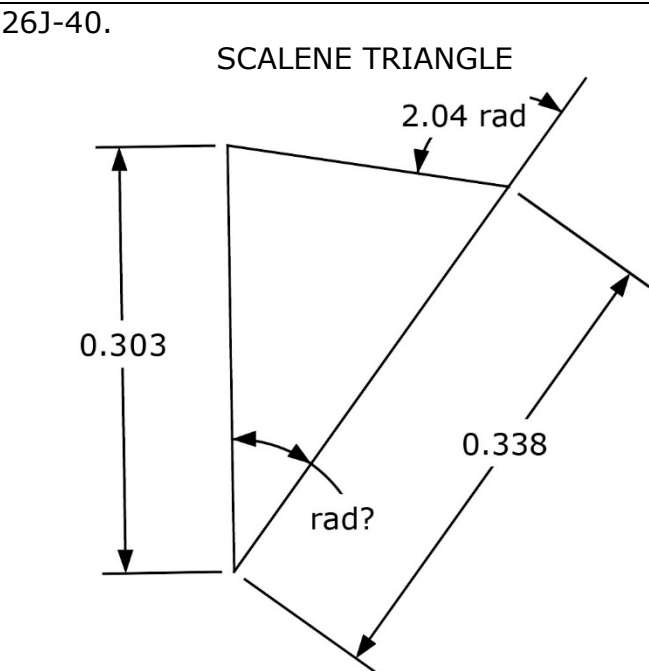
26J-36. A Coruña, Spain and Christchurch, New Zealand are a rare case of antipode cities. An antipode is a pair of locations on the earth that are diametrically opposite sides of the planet. What is the percent error in assuming the cities are 20,000 km apart following a great circle? -----36=_____ %

26J-37. A hummingbird flaps its wings 80 times each second. It flies at 26 mph. How far does it travel during one flap of its wings? -----37=_____ in

26J-38. Zachry flies around the world on a line of constant latitude that is 10,000 mi long. How far north of the equator did he travel? Latitude is measured by the angle relative to the equator. The equator is at 0°, and the North Pole is 90°. -----38=_____ deg



26J-39 = _____



26J-40 = _____