TRIG-STAR PROBLEM  LOCAL CONTEST

PRINT NAME: _______________________

KNOWN: DISTANCE AC = 592.49  DISTANCE BC = 740.17

FIND: \( \angle ACB = \) _____________ (5 POINTS)

DISTANCE AB = _______________ (5 POINTS)

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH
ANGLES: DEGREES-MINUTES-SECONDS
TO THE NEAREST SECOND

TRIG-STAR PROBLEM  LOCAL CONTEST

KNOWN: DISTANCE EF = 388.05 \( \angle EFG = 114^\circ 11' 45'' \) \( \angle FEG = 42^\circ 47' 40'' \)

FIND: \( \angle EGF = \) _____________ (6 POINTS)

DISTANCE EH = _______________ (6 POINTS)

DISTANCE FH = _______________ (6 POINTS)

DISTANCE FG = _______________ (6 POINTS)

DISTANCE GH = _______________ (6 POINTS)

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH
ANGLES: DEGREES-MINUTES-SECONDS
TO THE NEAREST SECOND

PAGE TOTAL: _______ POINTS
TRIG—STAR PROBLEM LOCAL CONTEST

KNOWN:  DISTANCE BC = 841.05  DISTANCE CD = 370.93
        \angle BAD = 82°55'23"'

FIND:  DISTANCE AB = ______________  (10 POINTS)
       DISTANCE AD = ______________  (10 POINTS)
       DISTANCE AC = ______________  (10 POINTS)

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH

PAGE TOTAL: _______ POINTS
TRIG–STAR PROBLEM LOCAL CONTEST

The owner of Lot 10 is preparing to have a house built on the lot. The results of a land survey of Lot 10 shows that a portion of the existing residence that was built for the owner of Lot 11 is over the lot line. It is necessary that a portion of Lot 10 be sold to the owner of Lot 11. The city requires that the new line is to be 5.00 feet (by perpendicular measurement) from the closest corner of the existing residence, and that the new line is to be parallel with the south line of Lot 10. The surveyor’s measured angles and distances are shown below. (Note: line AD is parallel to and equal in distance to line BC.)

Distance GA = 112.43  Distance GB = 104.96  Distance GH = 52.14
Distance GI = 59.75  Distance GC = 135.30  Distance BJ = 77.23
Angle ABC = 94°46'48"  Angle BGA = 73°21'45"  Angle HGB = 47°30'21"
Angle IGH = 27°56'08"  Angle CGI = 36°38'20"

Required Answer Format
Distances: nearest hundredth
Area: nearest full unit

Distance AB = ___________ (6 points)
Distance BC = ___________ (6 points)
Distance HI = ___________ (6 points)
Distance BE = ___________ (6 points)
Area BCFE = ___________ (6 points)

Page Total: _______ points

Copyright – NSPS

Sheet 3 of 3
TRIG–STAR MISCELLANEOUS DATA

RIGHT TRIANGLE FORMULAS

PYTHAGOREAN THEOREM: \( a^2 + b^2 = c^2 \)

AREA: \( \frac{1}{2}ab \)

TRIGONOMETRIC FUNCTIONS: \( \sin A = \frac{a}{c}, \cos A = \frac{b}{c}, \tan A = \frac{a}{b} \)

OBLIQUE TRIANGLE FORMULAS

LAW OF SINES: \( \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \)

LAW OF COSINES: \( a^2 = b^2 + c^2 - 2bc\cos A \)

AREA: \( \frac{1}{2}bh \)

CIRCLE FORMULAS

DIAMETER = \( d \)  RADIUS = \( r \)

CIRCUMFERENCE: \( 2\pi r \) or \( \pi d \)

AREA: \( \pi r^2 \)

ONE DEGREE (1') OF ARC = 60 MINUTES (60') OF ARC

ONE MINUTE (1') OF ARC = 60 SECONDS (60") OF ARC

THEREFORE ONE DEGREE OF ARC (1') = 3600 SECONDS OF ARC.
TRIG-STAR ANSWER KEY LOCAL CONTEST

PAGE 1

\[ \angle ACB = 36'49'27'' \]
\[ \text{DISTANCE AB} = 443.63 \]

PAGE 1

\[ \angle EGF = 23'00'35'' \]
\[ \text{DISTANCE EH} = 284.75 \]
\[ \text{DISTANCE FH} = 263.63 \]
\[ \text{DISTANCE FG} = 674.44 \]
\[ \text{DISTANCE GH} = 620.78 \]

PAGE 2

\[ \text{DISTANCE AB} = 478.19 \]
\[ \text{DISTANCE AD} = 893.56 \]
\[ \text{DISTANCE AC} = 967.49 \]

PAGE 3

\[ \text{DISTANCE AB} = 130.00 \]
\[ \text{DISTANCE BC} = 200.00 \]
\[ \text{DISTANCE HI} = 28.00 \]
\[ \text{DISTANCE BE} = 18.83 \]
\[ \text{AREA BCFE} = 3,753 \]