

TRIG-STAR

A HIGH SCHOOL TRIGONOMETRY SKILL AWARDS PROGRAM

2002 / 2003

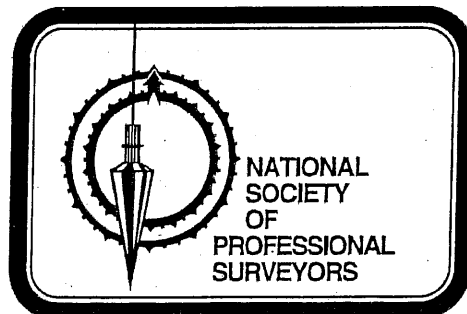
SAMPLE PROBLEMS

FOR USE IN PREPARATION FOR TRIG STAR CONTESTS

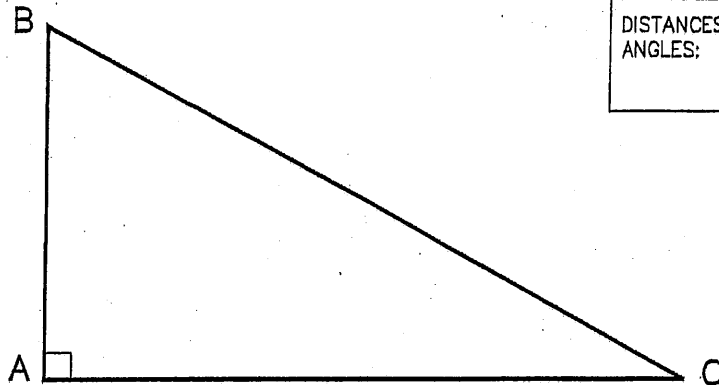


SPONSORED BY

THE
NATIONAL SOCIETY
OF
PROFESSIONAL SURVEYORS



TRIG-STAR PROBLEM 1-A LOCAL CONTEST



REQUIRED ANSWER FORMAT

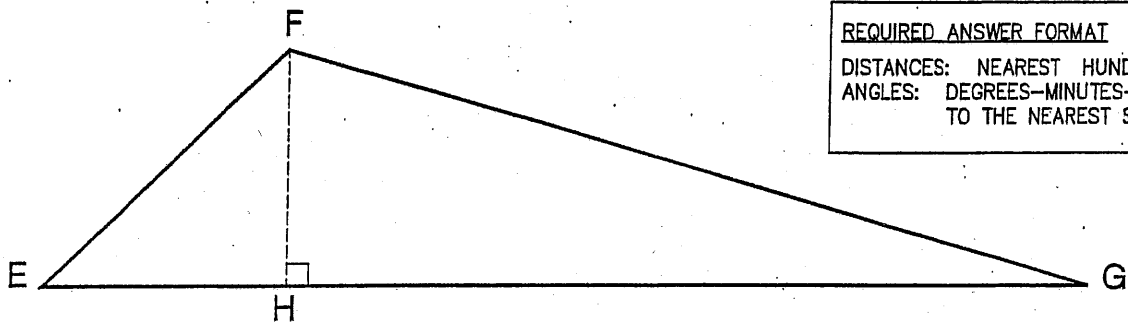
DISTANCES: NEAREST HUNDREDTH
 ANGLES: DEGREES-MINUTES-SECONDS
 TO THE NEAREST SECOND

KNOWN: DISTANCE AB = 39.39 DISTANCE BC = 82.56

FIND: DISTANCE AC = _____ (5 POINTS)

\sphericalangle CBA = _____ (5 POINTS)

TRIG-STAR PROBLEM 1-B LOCAL CONTEST



REQUIRED ANSWER FORMAT

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

KNOWN: DISTANCE EF = 46.15 \sphericalangle GFE = 120°20'18" \sphericalangle FEG = 43°34'24"

FIND: DISTANCE EH = _____ (6 POINTS)

DISTANCE FH = _____ (6 POINTS)

DISTANCE FG = _____ (6 POINTS)

DISTANCE GH = _____ (6 POINTS)

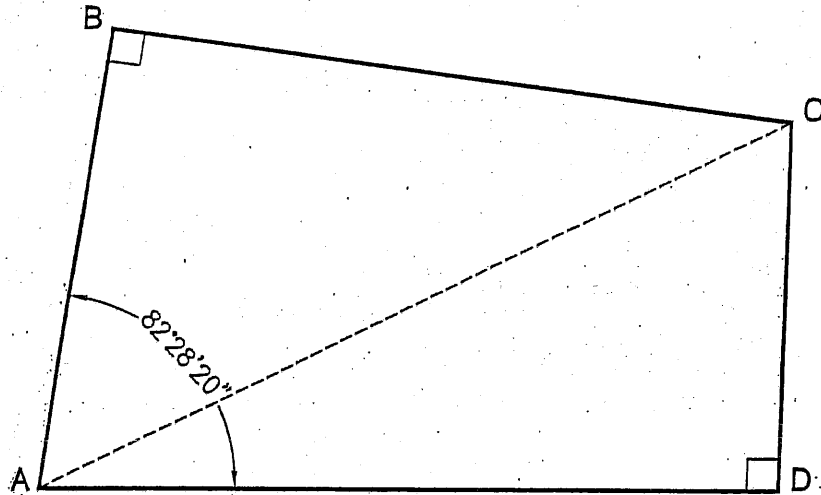
\sphericalangle EGF = _____ (6 POINTS)

PAGE TOTAL: _____ POINTS

TRIG-STAR PROBLEM 2 LOCAL CONTEST

REQUIRED ANSWER FORMAT

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



KNOWN: DISTANCE BC = 128.82 DISTANCE CD = 68.86
 \angle BAD = $82^{\circ}28'20''$

FIND: DISTANCE AB = _____ (10 POINTS)

DISTANCE AD = _____ (10 POINTS)

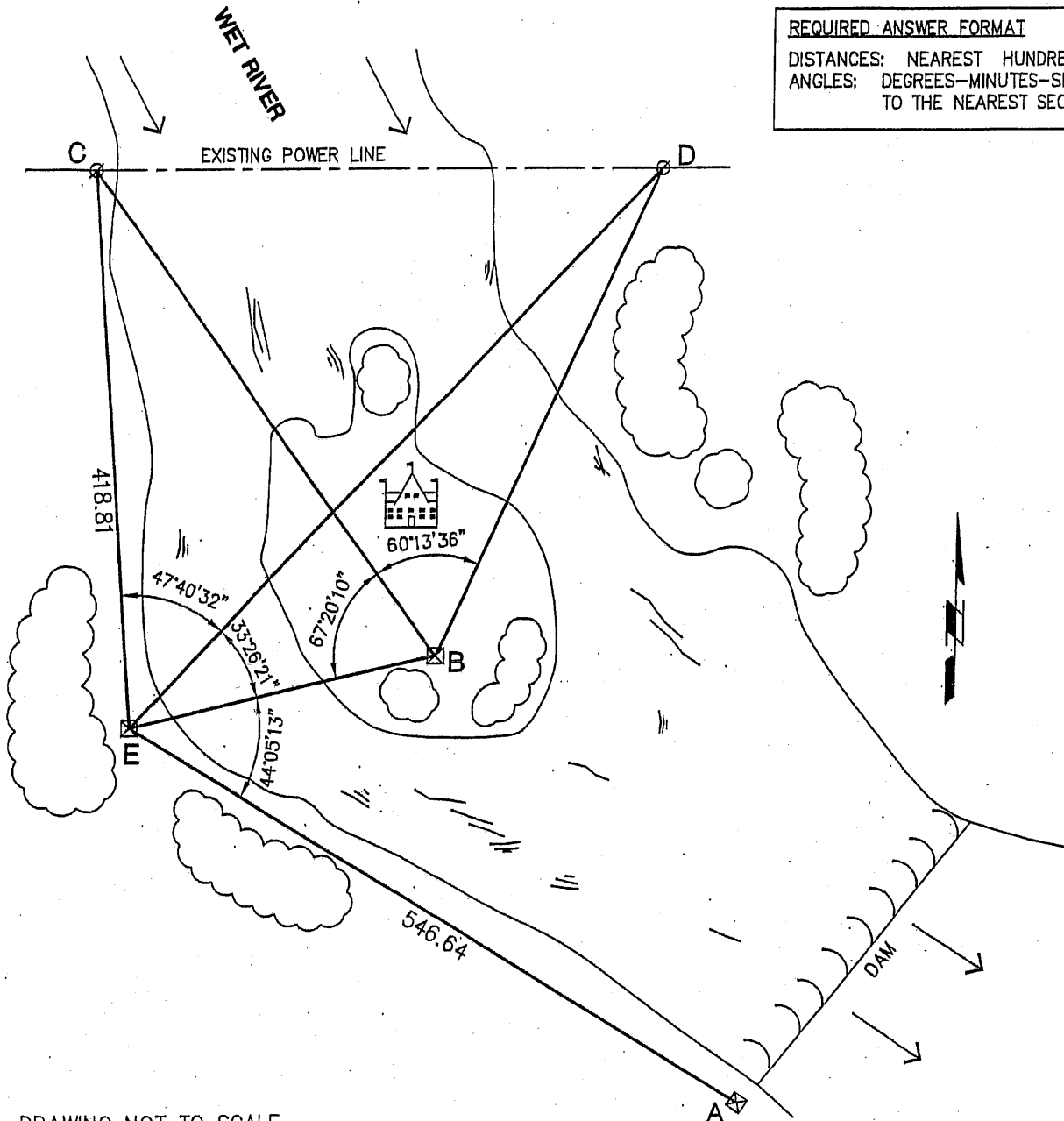
DISTANCE AC = _____ (10 POINTS)

PAGE TOTAL: _____ POINTS

TRIG-STAR PROBLEM 3 LOCAL CONTEST

REQUIRED ANSWER FORMAT

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



DRAWING NOT TO SCALE.

A GROUP OF INVESTORS HAS PLANS TO BUILD A RESORT ON AN ISLAND IN THE WET RIVER. THE ELECTRIC COMPANY WILL SUPPLY POWER TO A TRANSFORMER STATION (Point "B") AT THE RESORT BY CONSTRUCTING A GENERATING PLANT (Point "A") AT THE DAM DOWNSTREAM OF THE RESORT. THE TRANSFORMER STATION WILL NEED TO BE CONNECTED TO AN EXISTING POWER LINE WHICH CROSSES THE RIVER JUST NORTH OF THE ISLAND. USING THE INFORMATION IN THE DIAGRAM THAT WAS OBTAINED BY A SURVEY CREW; FIND THE FOLLOWING DIMENSIONS:

- FIND: DISTANCE AB = _____ (10 POINTS)
- DISTANCE BC = _____ (10 POINTS)
- DISTANCE BD = _____ (10 POINTS)

PAGE TOTAL: _____ POINTS

TRIG-STAR PROBLEM 1-A LOCAL CONTEST

PAGE 1, PROBLEM 1-A

$$\text{DISTANCE AC} = \boxed{72.56}$$

$$\sphericalangle \text{CBA} = \boxed{61^{\circ}30'12''}$$

PAGE 1, PROBLEM 1-B

$$\text{DISTANCE EH} = \boxed{33.44}$$

$$\text{DISTANCE FH} = \boxed{31.81}$$

$$\text{DISTANCE FG} = \boxed{114.79}$$

$$\text{DISTANCE GH} = \boxed{110.29}$$

$$\sphericalangle \text{EGF} = \boxed{16^{\circ}05'18''}$$

PAGE 2

$$\text{DISTANCE AB} = \boxed{86.48}$$

$$\text{DISTANCE AD} = \boxed{139.04}$$

$$\text{DISTANCE AC} = \boxed{155.16}$$

PAGE 3

$$\text{DISTANCE AB} = \boxed{410.76}$$

$$\text{DISTANCE BC} = \boxed{448.41}$$

$$\text{DISTANCE BD} = \boxed{401.98}$$