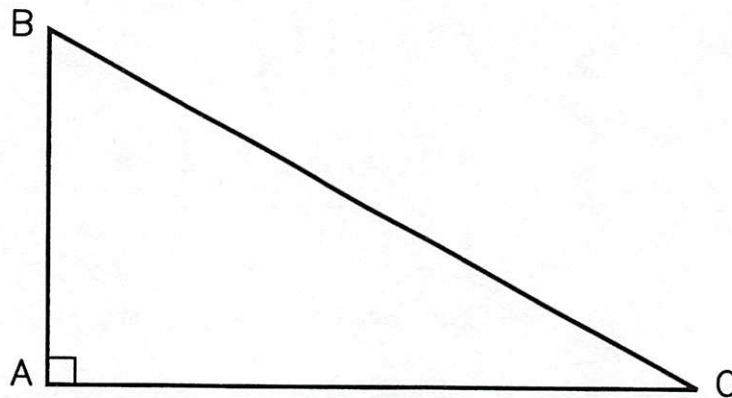


# TRIG-STAR PROBLEM LOCAL CONTEST

PRINT NAME: \_\_\_\_\_



KNOWN: DISTANCE AC = 415.23      DISTANCE BC = 512.09

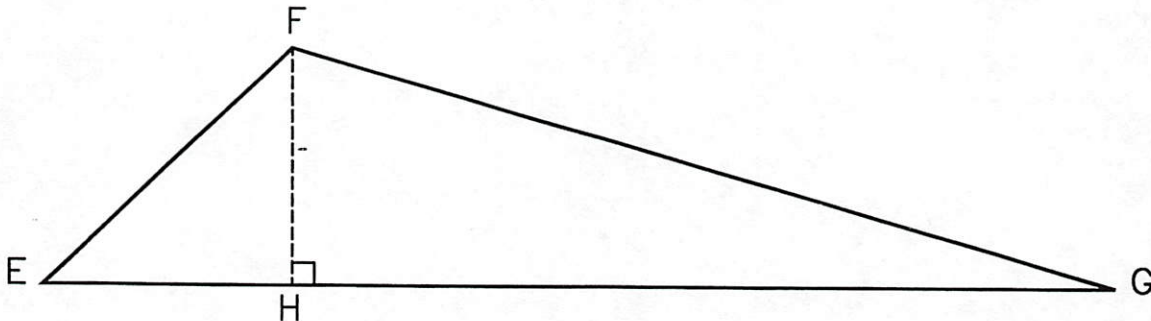
FIND:       $\angle$  ACB = \_\_\_\_\_ (5 POINTS)

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 = 240.88       $\angle$  EFG = 118°05'50"       $\angle$  FEG = 40°12'25"

FIND:       $\angle$  EGF = \_\_\_\_\_ (6 POINTS)

DISTANCE EH = \_\_\_\_\_ (6 POINTS)

DISTANCE FH = \_\_\_\_\_ (6 POINTS)

DISTANCE FG = \_\_\_\_\_ (6 POINTS)

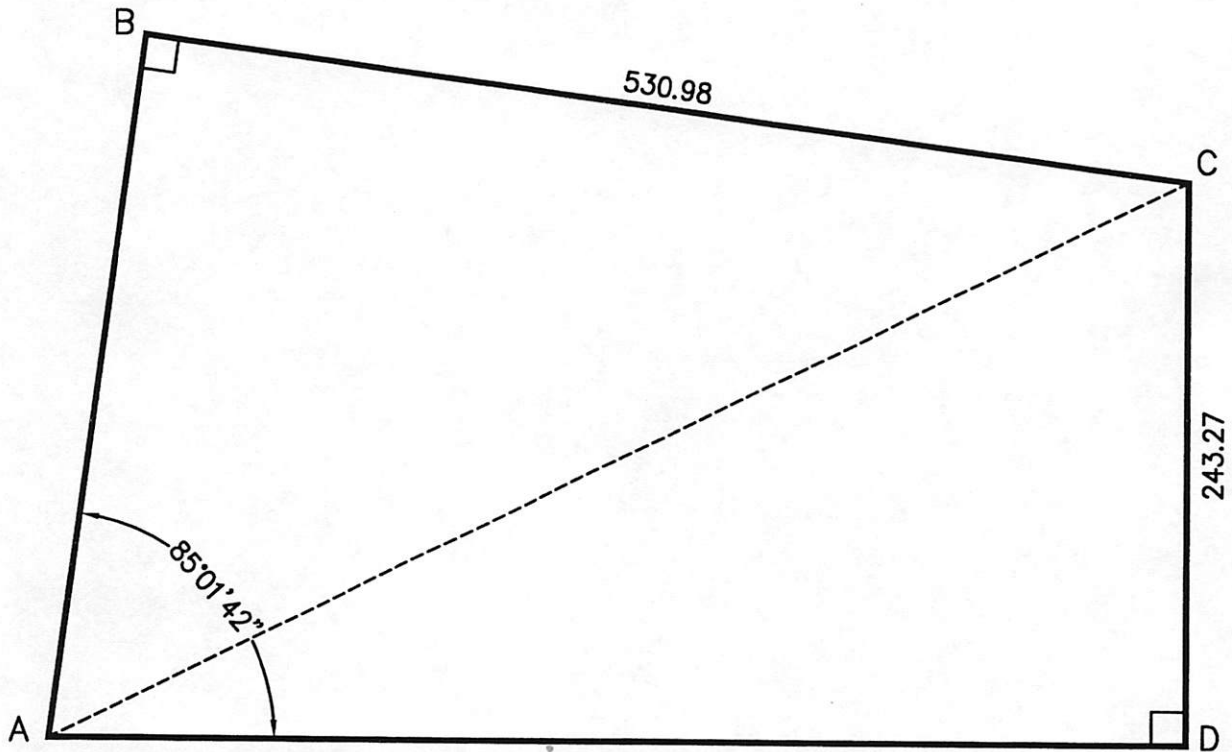
DISTANCE GH = \_\_\_\_\_ (6 POINTS)

**REQUIRED ANSWER FORMAT**

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

PAGE TOTAL: \_\_\_\_\_ POINTS

# TRIG-STAR PROBLEM LOCAL CONTEST



KNOWN: DISTANCE  $BC = 530.98$  DISTANCE  $CD = 243.27$   
 $\angle BAD = 85^{\circ}01'42''$

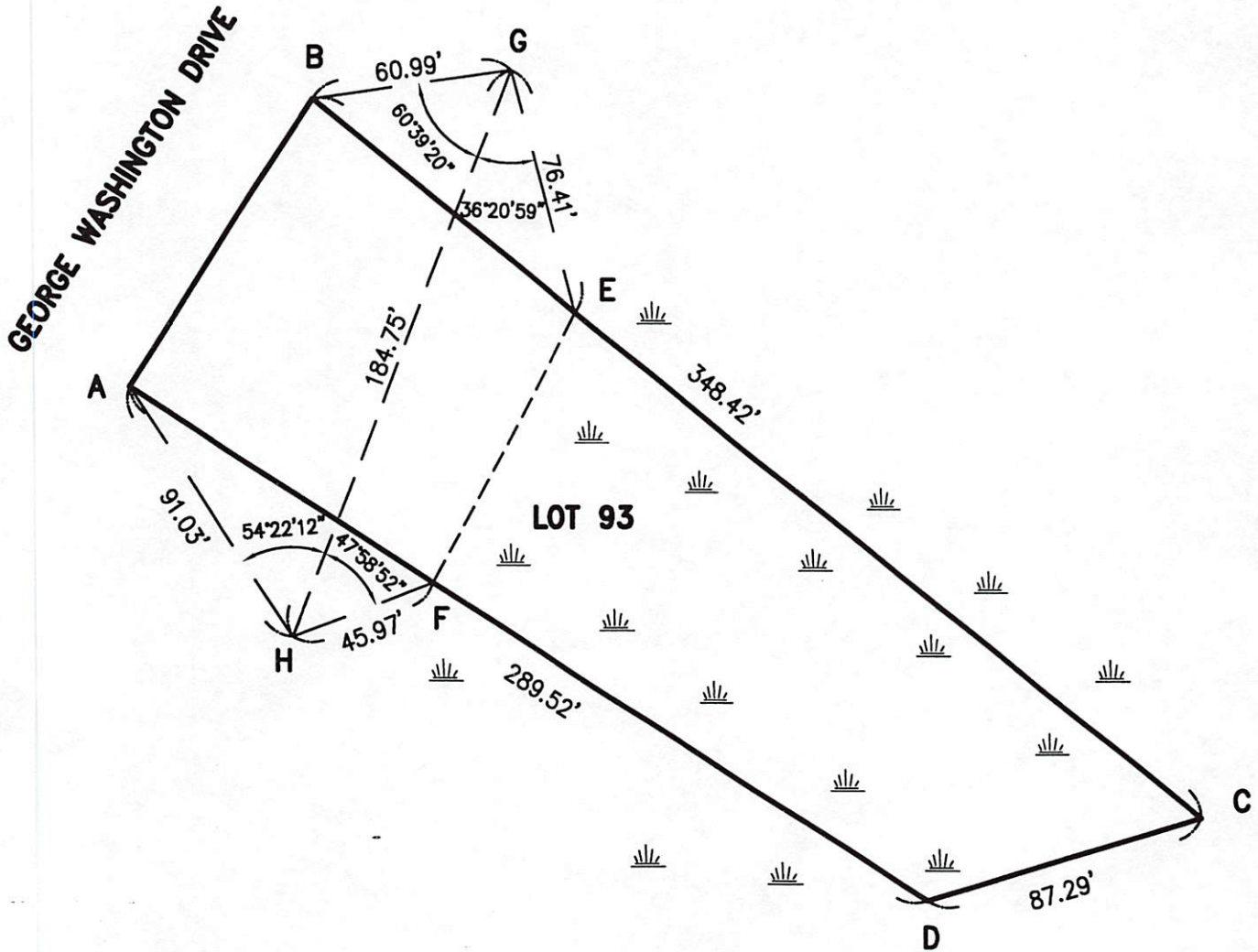
FIND: DISTANCE  $AB =$  \_\_\_\_\_ (10 POINTS)  
DISTANCE  $AD =$  \_\_\_\_\_ (10 POINTS)  
DISTANCE  $AC =$  \_\_\_\_\_ (10 POINTS)

**REQUIRED ANSWER FORMAT**  
DISTANCES: NEAREST HUNDREDTH

PAGE TOTAL: \_\_\_\_\_ POINTS

# TRIG-STAR PROBLEM LOCAL CONTEST

LOT 93 IN GEORGE WASHINGTON ESTATES INCLUDES WETLANDS ACROSS THE REAR PORTION OF THE LOT. A HOUSE CONSTRUCTION COMPANY HIRES A SURVEYOR TO SURVEY THE HEAVILY WOODED LOT AND TO DETERMINE THE PORTION OF THE LOT THAT DOES NOT LIE WITHIN THE WETLAND. A WETLAND BIOLOGIST HAS DELINEATED THE WETLANDS, AND MARKED THE EDGE OF THE WETLAND AT POINTS E AND F. THE SURVEYOR SETS CONTROL MARKERS AT POINTS G AND H, AND FROM THESE TWO POINTS, LOCATES POINTS A, B, E, AND F. THE SURVEYOR'S MEASURED ANGLES AND DISTANCES ARE SHOWN BELOW.



DISTANCE BC = 348.42	DISTANCE CD = 87.29	DISTANCE DA = 289.52
DISTANCE GH = 184.75	DISTANCE GB = 60.99	DISTANCE GE = 76.41
DISTANCE HA = 91.03	DISTANCE HF = 45.97	$\sphericalangle$ BGH = $60^{\circ}39'20''$
$\sphericalangle$ HGE = $36^{\circ}20'59''$	$\sphericalangle$ AHG = $54^{\circ}22'12''$	$\sphericalangle$ GHF = $47^{\circ}58'52''$

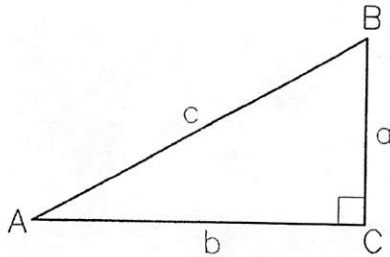
- DISTANCE BE = \_\_\_\_\_ (6 POINTS)
- DISTANCE AF = \_\_\_\_\_ (6 POINTS)
- DISTANCE AB = \_\_\_\_\_ (6 POINTS)
- ANGLE ABE = \_\_\_\_\_ (6 POINTS)
- DISTANCE EF = \_\_\_\_\_ (6 POINTS)

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

PAGE TOTAL: \_\_\_\_\_ POINTS

# TRIG-STAR MISCELLANEOUS DATA

## RIGHT TRIANGLE FORMULAS



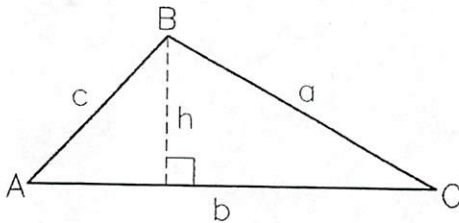
PYTHAGOREAN THEOREM:  $a^2 + b^2 = c^2$

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

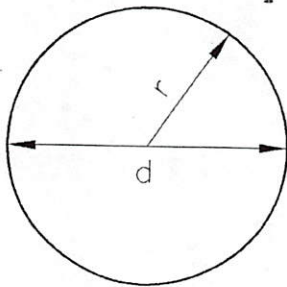


LAW OF SINES:  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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.