You **must** find, and show work for the ⭐ values. For the rest, make a good attempt and show evidence of work.

TRIGSTAR #5

THE OWNER OF LOT 1, SHOWN AS FIGURE ABCD WOULD LIKE TO CONSTRUCT A FENCE AROUND THE PROPERTY FOR PRIVACY. A SURVEYOR HAS BEEN HIRED TO FIND OR SET THE BOUNDARY CORNERS.

SURVEY MONUMENTS WERE FOUND AT POINTS A, B AND C, BUT THE MONUMENT AT POINT D HAS BEEN DESTROYED. THE SURVEYOR FOUND A MONUMENT AT POINT E AND HAS DETERMINED FROM PREVIOUS RECORDS THAT POINT D SHOULD BE PLACED ON A STRAIGHT LINE BETWEEN POINTS C AND E. IT HAS ALSO BEEN DETERMINED THAT THE LINE AD IS PARALLEL WITH LINE BC.

THE SURVEYOR HAS OBTAINED THE ANGLES AND DISTANCES AS SHOWN BELOW.

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST   HUNDREDTH

FIND: ⭐ DISTANCE BC = _____ (10 POINTS)

DISTANCE CD = _____ (10 POINTS)
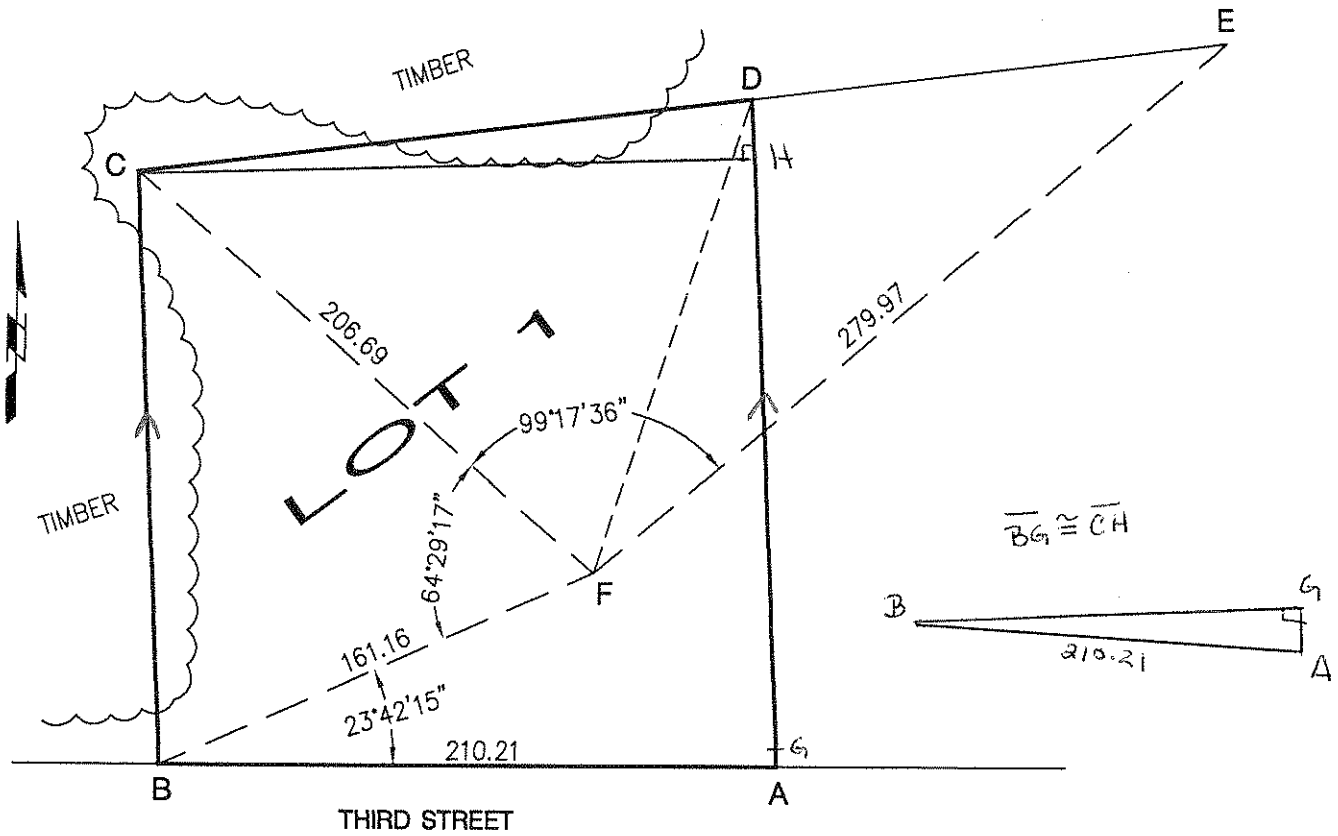
DISTANCE DF = _____ (10 POINTS)

PAGE TOTAL: _____ POINTS

TRIG-STAR PROBLEM LOCAL CONTEST

A RAILROAD COMPANY WOULD LIKE TO BUILD A NEW TRACK TO SERVICE A FACTORY. THE POSITION OF A LOADING FACILITY HAS BEEN DETERMINED AND WILL BE AT POINT "E". A SURVEYOR NEEDS TO LAYOUT A CURVE THAT WILL PASS THROUGH POINTS "C", "E" AND "G".

$\overline{HF} \parallel \overline{DG}$

so

$\angle AEF \cong \angle GDF$ (why

CENTER OF
LOADING FACILITY

FACTORY

CENTERLINE OF RAILROAD TRACK
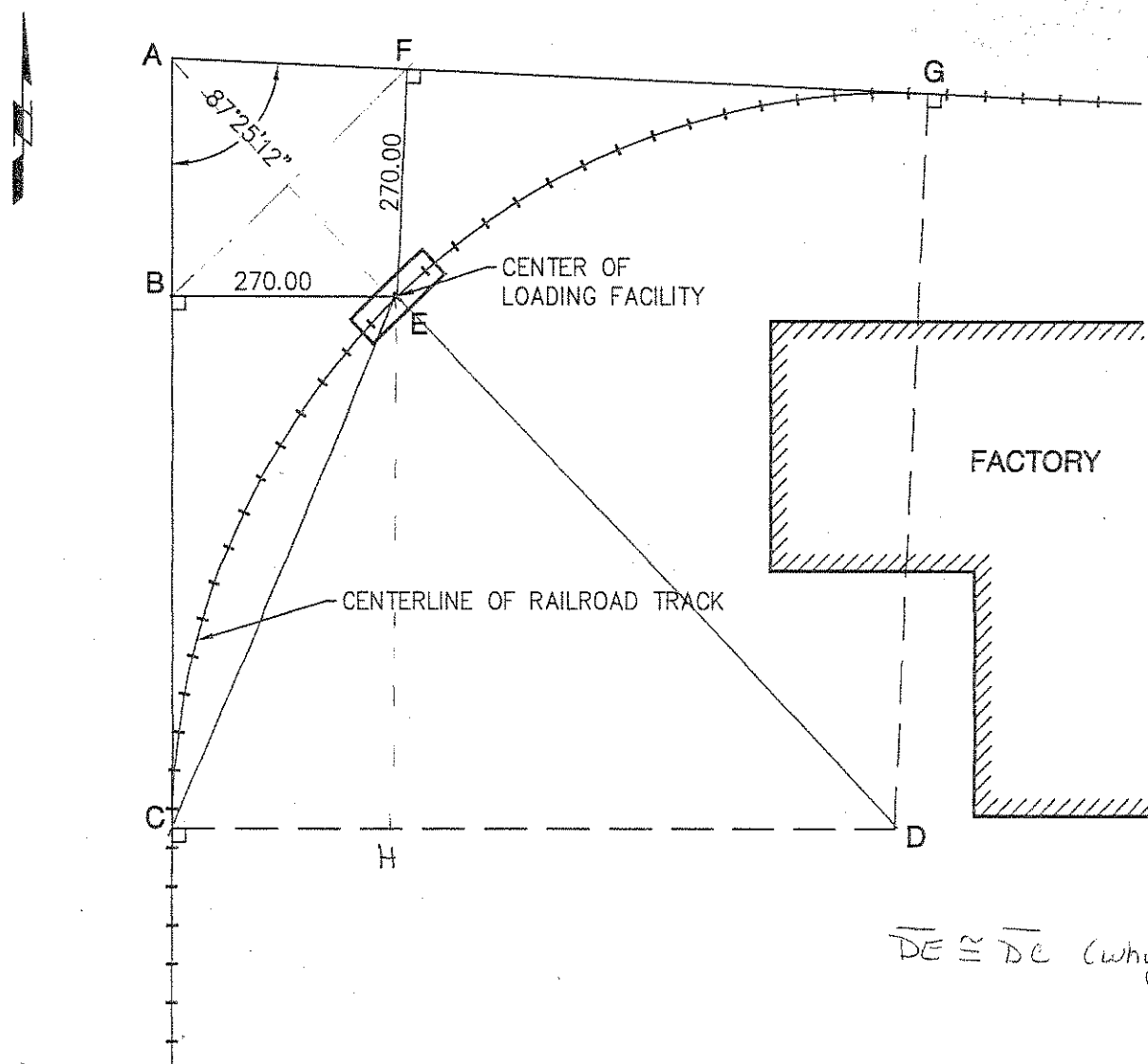
$\overline{DE} \cong \overline{DC}$ (why?)

FIND: ∡ DISTANCE AB = _____ (7 POINTS)

DISTANCE BC = _____ (7 POINTS)

DISTANCE CD = _____ (7 POINTS)

ARC DISTANCE CE = _____ (9 POINTS)

PAGE TOTAL: _____ POINTS

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH

TRIG-STAR PROBLEM   LOCAL CONTEST

A FATHER HAS DIVIDED A TRACT OF LAND AS SHOWN BY FIGURE A, B, C, D, AND ARC DA INTO LOTS FOR HIS THREE CHILDREN.   THE TIME HAS COME FOR THE CHILDREN TO DETERMINE WHO GETS WHICH LOT.   THEY DECIDE TO DRAW FROM A DECK OF CARDS FOR FIRST AND SECOND CHOICE.   THE CHILDREN WOULD LIKE MORE INFORMATION BEFORE THEY MAKE THEIR CHOICES.
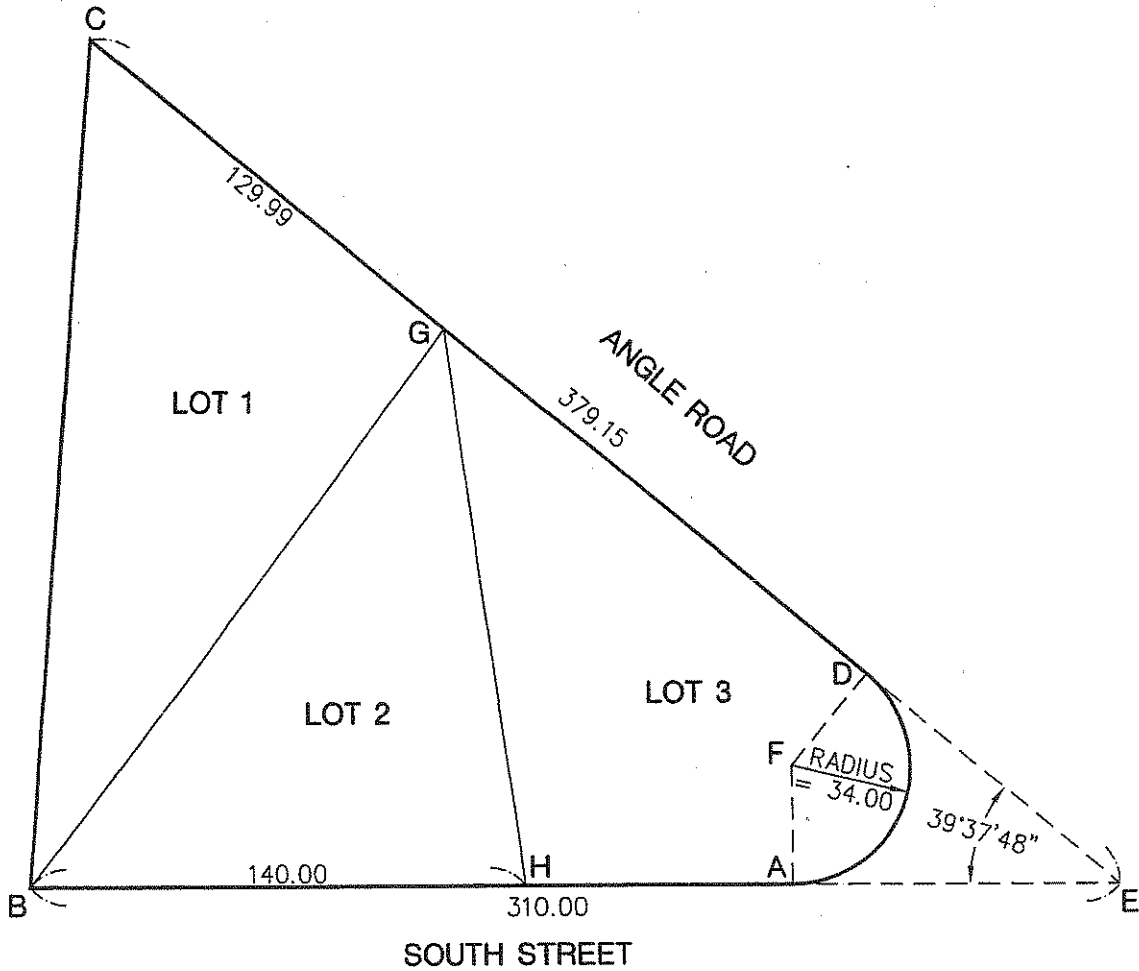
FIND:

DISTANCE BC = _____ (5 POINTS)

DISTANCE BG = _____ (5 POINTS)

DISTANCE GH = _____ (5 POINTS)

ARC DISTANCE AD = _____ (5 POINTS)

AREA LOT 1 = B,C,G,B = _____ (5 POINTS)

AREA LOT 3 = A,H,G,D, ARC DA = _____ (5 POINTS)

PAGE TOTAL: _____ POINTS
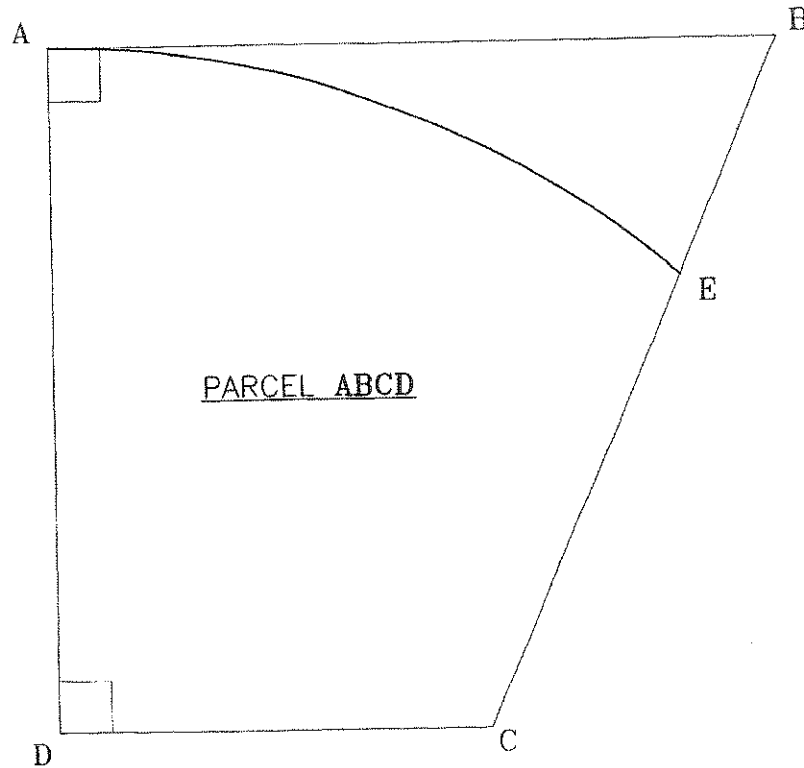
REQUIRED ANSWER FORMAT

DISTANCES: NEAREST HUNDREDTH
AREA: NEAREST WHOLE UNIT

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH
AREAS: NEAREST WHOLE UNIT

PARCEL ABCD

PROBLEM:
    THE NORTH SIDE OF PARCEL ABCD IS BOUNDED BY A LOCAL HIGHWAY. DUE TO A NEW HIGHWAY ALIGNMENT, THE NORTH SIDE OF PARCEL ABCD IS TO BE ROUNDED OUT WITH A CIRCULAR ARC AE. THE RADIUS OF THE ARC IS 500.00 AND IS TANGENT TO LINE AB AT POINT A. FIND THE NEW BOUNDARY DIMENSIONS OF PARCEL ABCD, SUCH AS THE ARC LENGTH OF AE AND THE LENGTH OF LINE CE.

KNOWN:
AB = 300.00, BC = 412.31, CD = 200.00, DA = 400.00,
∠BCD = 104°—02'—10", ∠CDA & ∠DAB = 90°—00'—00",
& RADIUS OF ARC AE = 500.00

FIND:
ARC LENGTH AE _____ (6 Points)   ✱ AREA ABCD _____ (6 Points)

LENGTH EC _____ (6 Points)   AREA AECD _____ (6 Points)

LENGTH BE _____ (6 Points)

Page Total:_____Points

TRIG—STAR PROBLEM LOCAL CONTEST

THE OWNER OF LOT 109, SHOWN AS FIGURE ABCD, WANTS TO OBTAIN A BUILDING PERMIT, AND HIRES A LAND SURVEYOR TO COMPLETE A BOUNDARY SURVEY.

THE SURVEYOR FINDS EXISTING MONUMENTS AT POINTS A, B, AND D, AND NEEDS TO REESTABLISH POINT C. TREES OBSTRUCT THE VIEW ALONG LOT LINES AS SHOWN, SO THE SURVEYOR SETS A CONTROL POINT AT POINT F FROM WHICH ALL FOUR LOT CORNER LOCATIONS CAN BE SEEN. THE SURVEYOR ALSO FINDS A MONUMENT AT POINT E, AND NOTES THAT POINT C WOULD BE ON A STRAIGHT LINE CONNECTING POINTS D AND E. IT IS ALSO NOTED THAT LINE AD IS PARALLEL TO LINE BC.

THE SURVEYOR'S MEASURED ANGLES AND DISTANCES ARE SHOWN BELOW.
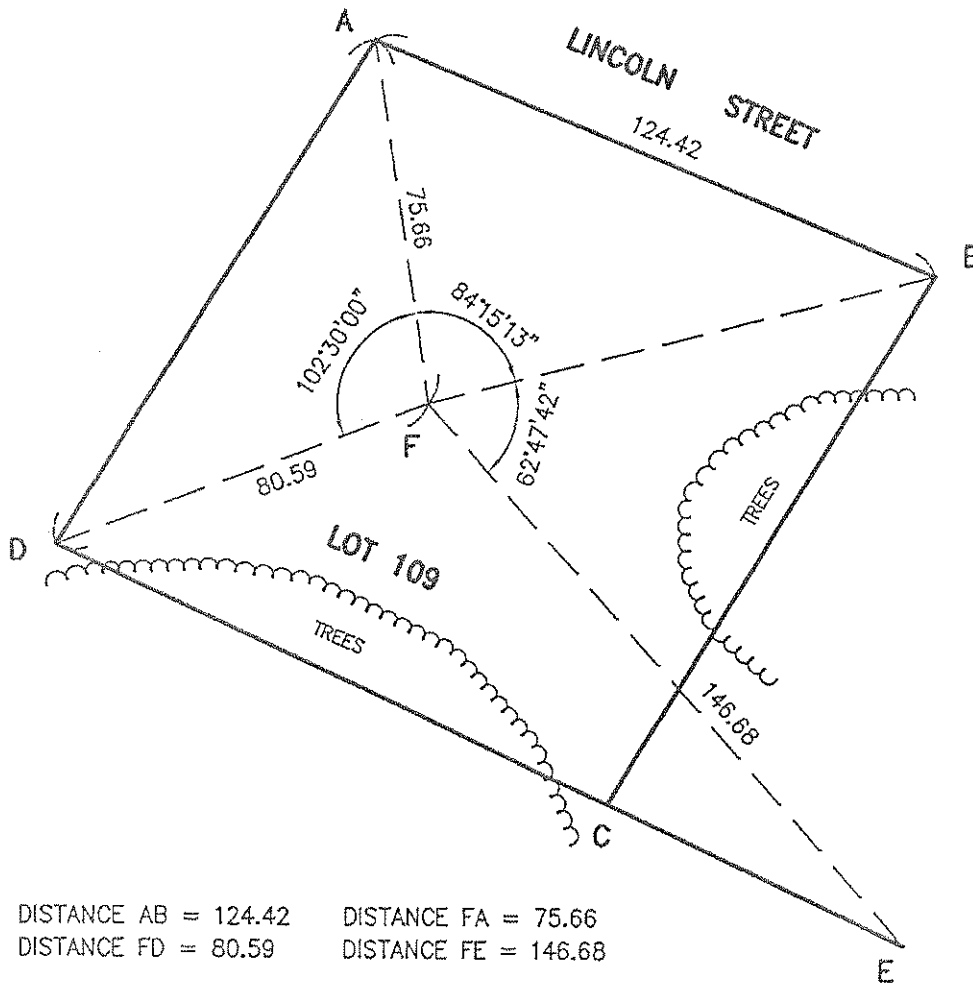
DISTANCE AB = 124.42   DISTANCE FA = 75.66
DISTANCE FD = 80.59   DISTANCE FE = 146.68

✱ DISTANCE DA = _____ (6 POINTS)

DISTANCE FC = _____ (6 POINTS)

DISTANCE DC = _____ (6 POINTS)

ANGLE BFC = _____ (6 POINTS)

AREA ABCD = _____ (6 POINTS)

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH
AREA: NEAREST WHOLE UNIT

PAGE TOTAL: _____ POINTS

2003-2004

BC = 200.00
CD = 210.59
DF = 168.58

2004-2005

AB = 282.44
BC = 631.63
CD = 873.81
CE = 705.96

2008-2009

BC = 242.50
BG = 198.00
GH = 160.42
AD = 83.30
Area Lot 1 = 12,851
Area Lot 3 = 11,71_

2010-2011

AC = 994.01
AD = 666.89
BD = 891.07
BC = 586.07
CD = 456.99
AB = 1087.93

2012-2013

AE = 295.71
EC = 324.77
BE = 87.54
Area ABCD = 100,000
AREA AECD = 94,496

2013-2014

DA = 121.90
FC = 89.47
DC = 123.78
$\angle BFC = 79°58'42''$
Area ABCD = 15,287