

2013 National FFA Team Activity

State Team Name: _____

Mrs. Jones has a wooded tract and is interested in selling her timber. You are a forester who represents a logging company. You are working to evaluate the stand for your company and to answer some questions that Mrs. Jones has about her woodland. You should work together to get the answers to the questions. The letters A-Q refer to stops in the forest where you will need to take measurements and make observations. An additional business problem utilizes attached information.

Notes:

Merchantable heights are estimated to the upper point on a tree where it becomes 10 inches in diameter, OR, where a major fork in a tree stem occurs, OR, where a limb or cluster of limbs have a combined diameter equal to $\frac{1}{2}$ of the diameter of the tree at that point. These upper limit rules are called "stoppers".

When figuring tree volumes, all trees are considered sound for the purpose of this exercise (no cull deductions). There is no pulpwood market in this area.

Measure the tree diameters in 1-inch diameter classes

Measure merchantable tree heights in 16-foot logs (to the nearest $\frac{1}{2}$ log)

Assume no declination (0°) when using compasses

Needed Equipment: Biltmore Stick, compass, calculator, and volume table

Use the tree volume table provided, NOT the scale on the Biltmore stick

Each question is worth 1 point unless otherwise noted.

A.

1. Before this was a planter it was a whiskey barrel. What species is the wood? (2 points) _____

B.

Use the provided USGS Topography Map to answer the following questions:

2. What is the name of this USGS Topography Map? (2 points) _____
3. What is the Scale of this USGS Topography Map? (2 points) _____
4. What is the Contour Interval of this USGS Topography Map? (2 points) _____
5. What is the elevation of the water tank in Rockaway Beach? (2 points) _____
6. What is the highest elevation in Section 2 T23N-R21W? (2 points) _____

C.

7. The white spots on the needles are what tree disorder? (2 points) _____

D.

8. Identify this tree. (2 points) _____
9. What is the diameter of this tree? _____
10. What is the merchantable height? _____
11. What is the board foot volume? (3 points) _____
12. Other than lumber products, what benefit does this tree provide? _____

E.

Name 5 pieces of PPE that you should wear before using a chainsaw.

13. _____
14. _____
15. _____
16. _____
17. _____

Name each of the labeled parts of the chainsaw.

18. _____
19. _____
20. _____
21. _____
22. _____

F.

23. Identify this tree. (2 points) _____
24. What is the disorder that will affect the merchantable value of this tree? (2 points) _____

G.

25. Identify this tree. (2 points) _____
26. What is the diameter of this tree? _____
27. What is the merchantable height? _____
28. What is the board foot volume? (3 points) _____

H.

29. What is this tree disorder? (2 points) _____
30. There are a large number of dead trees in this woodland. This is a problem throughout the region. No biotic agents have been consistently associated with the dead trees. Which disorder should be considered as a factor in the tree mortality? (2 points) _____

I.

31. Identify this tree. (2 points) _____
32. What is the diameter of this tree? _____
33. What is the merchantable height? _____
34. What is the board foot volume? (3 points) _____

J.

- 35. What is this tool? _____
- 36. What does this measure? _____
- 37. Use this tool at the point marked by the wooden stake. What is the result?
(3 points) _____

K.

- 38. What is this insect? (2 points) _____
- 39. What species does it attack? _____
- 40. Is this a native insect? (2 points) _____

L-M and N-O The marked lines represents the sides of an old home site in Mrs. Jones' woods. The ends of the line segments are marked by flagged blue tipped stakes. The flags hanging between the stakes are only to assist you in finding the points...do not use them to sight a bearing.

- 41. Along what azimuth does the first leg of the marked "boundary" line L-M extend? (3 points) _____
- 42. How many feet is the first leg of the boundary? (3 points) _____
- 43. Along what azimuth does the second leg of the marked "boundary" line N-O extend? (3 points) _____
- 44. How many feet is this second leg of the boundary? (3 points) _____

Assume the two lines were actually sides of a rectangular block marking the old home site. Use your distance measurements. How much area is covered by the home site?

- 45. (2 points) Sq.ft. _____
- 46. (2 points) Acres _____

P.

- 47. This product is often used as animal bedding. Identify the species of wood in this product. (2 points) _____

Q.

- 48. Identify this tree. (2 points) _____
- 49. What is the diameter of this tree? _____
- 50. What is the merchantable height? _____
- 51. What is the board foot volume? (3 points) _____

Business Problem

You have evaluated the stand of timber for your logging company. Mrs. Jones has 40 acres of timber you would like to purchase. Your task is to figure out how much you can offer Mrs. Jones for her timber while covering costs and still making a reasonable profit. Use the information below, the attached timber summary sheet, and the attached delivered timber price list.

You know that in this area it costs about \$120 per thousand to operate your logging crew (stump to log deck), \$50 per thousand to haul to the mill, and \$200 per acre to retire your roads, trails and landings.

You would like to make a 20% profit over your expenses.

- 52. What is your logging cost? _____
- 53. What is your hauling cost? _____
- 54. What is your site retirement cost? _____
- 55. How much is your projected profit? _____
- 56. How much cost + profit? _____
- 57. How much do you expect to get at the mill? _____
- 58. What is your offer to Mrs. Jones? (5 points) _____

Joe's Timber Company

SUMMARY OF TIMBER CRUSED FOR:

Mrs Jones

Area: 40 acres

VOLUME BY SPECIES:

Species	Volume (Bd Ft)
white oak	67000
red oak	28000
hickory	22500
yellow-poplar	18500
sugar maple	5000
Totals	141,000

Joe Forester

Happy Valley Sawmill
Average Delivered Log Prices
(Note: this has been greatly simplified)

SPECIES	AVERAGE PRICE/THOUSAND
Red oak	\$450
White Oak	\$600
Yellow Poplar	\$300
Sugar Maple	\$400
Hickory	\$300

FFA 2013 Group Problem Answers

All questions worth 1 point unless otherwise noted.

Total points possible = 100, so multiply raw score times 4.5 for final score

internal note Volumes: 5% range from correct amount

internal note Distances: total= $\pm 3'$ around correct, then ranges 5', 5'

internal note Azimuths: total= $\pm 2^\circ$ around correct, then ranges 2° each

- A 1. White oak
- B 2. Branson
- 3. 1:24,000
- 4. 20ft
- 5. 900-910ft
- 6. 1224ft
- C 7. Scale
- D 8. White oak
- 9. 21 inches
- 10. 3.5 logs
- 11. 463-444(1point), 443-424(2points), 423-383 (3points), 382-363 (2point), 362-343 (1point)
- 12. wildlife, mast
- E 13.-17. Chaps, hardhat, hearing protection, eye protection, gloves, boots, face shield (other correct answers are possible)
- 18. Chainbreak
- 19. Choke
- 20. Muffler
- 21. Throttle trigger
- 22. Carburetor adjustment screws
- F. 23. American beech
- 24. Butt or heart rot
- G. 25. Northern red oak
- 26. 24 inches
- 27. 3 logs
- 28. 616-590(1point), 589-563(2points), 562-509 (3points), 508-483 (2point), 482-456 (1point)
- H. 29. Mistletoe
- 30. Climatic injury (drought)
- I. 31. white oak

- 32. 18 inches
- 33. 2 logs
- 34. 206-197(1point), 196-188(2points), 187-170 (3points), 169-161 (2point), 160-152 (1point)
- J. 35. Prism or wedge prism
- 36. Basal area
- 37. 120(1pt), 130(2pt), 140 (3pt), 150(2pt), 160 (1pt)
- K. 38. Emerald ash borer (2pts), beetle or wood borer (1pt)
- 39. Ash
- 40. No
- L.-O. 41. 137 degrees- 131,132(1pt), 133,134(2pt), 135-139(3pt), 140,141(2pt) 142,143(1pt)
- 42. 166 ft - 179-175(1pt), 174-170(2pt), 169-163(3pt), 162-157(2pt), 158-153 (1pt)
- 43. 240 degrees 234,235(1pt), 236,137(2pt), 138-242(3pt), 243,244(2pt) 245,246(1pt)
- 44. 117 ft: 130-126(1pt), 125-1121(2pt), 120-115(3pt), 114-109(2pt), 108-104 (1pt)
- 45. 19,422sqft:17,868-18,839(1pt), 18,840-20,005(2pt), 20,006-20976(1pt)
- 46. .44 acre: .401-.427(1pt), .428-.452(2pt), .453-.475(1pt)
- P. 47. Eastern redcedar
- Q. 48. Hickory
- 49. 21 inches
- 50. 3 logs
- 51. 426-408(1point), 407-389(2points), 388-352 (3points), 351-333 (2point), 332-314 (1point)

Business Problem

- 52. \$16,920
- 53. \$7,050
- 54. \$8,000
- 55. \$6,394
- 56. \$38,364
- 57. \$67,100
- 58. \$28,000-28735 (2pt), \$28,736 (5pts), 28,737-29,500(2pt)