2014 National FFA Team Activity

State Team Name: Key

Mrs. Jones has a wooded tract and is interested in selling her timber. You are working to evaluate the stand 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-M 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 ½ 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 ½ 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. Identify this tree. (2 points) hickory (2pt)
2. What is the diameter of this tree? 23 inches
3. What is the merchantable height? 2.5 logs
4. What is the board foot volume? (3 points) 417 460-480 (1pt) 439-459 (2pt) 438-396 (3pt) 395-375 (2pt), 874-354 (1pt)
5. Other than lumber products, what is a benefit that this tree provides? nuts, habitat, or barbecue

B.

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

6. What is the name of this USGS Topography Map? (2 points) Shawnee Bend MO (2pt)
7. What is the Scale of this USGS Topography Map? (2 points) 1:24000 (2pt)
8. What is the Contour Interval of this USGS Topography Map? (2 points) 20 ft (2pt)
9. What is the highest elevation in section 7 T40N-R22W? (2 points) Kaysinger Bluff (2pt) Kaysinger (1pt)
10. What is the name of the bluff in section 6 T40N-R22W? (2 points) 860ft, or between 860-879ft (2pt)

C.

11. Before this was a planter it was a whiskey barrel. What species is the wood? (2 points) white oak

D.

12. What is this tool? (2 points) fire rake
13. What is this tool? (2 points) Pulaski or Pulaski forester axe
14. What is this tool? (2 points) drip torch

Name four pieces of PPE needed by wildland firefighters.

15. hardhat
16. nomax
17. eye protection
18. gloves

boots
Fire shelter

E.

19. Identify this tree. (2 points) white oak
20. What is the diameter of this tree? 21 inches
21. What is the merchantable height? 3 logs
22. What is the board foot volume? (3 points) 370 426-408(1pt) 407-389(2pt) 389-351(3pt) 350-333(2pts) 332-314 (1pt)

F.

23. Identify the major species in the overstory. (2 points) white oak and/or red oak
24. Identify the major species in the understory. (2 points) beech and/or sugar maple
25. What is the most likely reason for the dominance of the understory species; shade tolerance, drought tolerance, fire tolerance or disease tolerance? (2 points) shade tolerance

G.

26. Identify this tree. (2 points) Douglas-fir
27. Which is not a common use for this tree?
a. dimensional lumber, b. plywood, c. Christmas trees d. fine furniture e. the tree is commonly used for all of these purposes. (2 points) d - Fine furniture

H.

28. Identify this tree. (2 points) red oak
29. What is the diameter of this tree? 16 inches
30. What is the merchantable height? 2.5 logs
31. What is the board foot volume? (3 points) 143 164-158(1pt) 157-151(2pt) 150-135(3pts), 134-128(2pts) 127-121(1pt)

I.

32. What is this tree disorder? (2 points) Beetles, or EAB(Emerald Ash Bore)
33. What species is this wooden item? (2 points) ash

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J.

34. Along what azimuth does the line J.1-J.2 extend? (3 points) 130 degrees 136, 135(1pt) 134, 133(2pt) 132-128(3pt) 127, 126(2pt) 125, 124(1pt)

35. How many feet is line J.1-J.2? (3 points) _____

129ft 142-138(1pt), 137-131(2pt), 132-126(3pt), 125-120(2pt), 119-114(1pt)

K.

36. Along what azimuth does the line K.1-K.2 extend? (3 points) 271 degrees 277-276(1pt) 275-274(2pt) 273-269(3pt) 268-267(2pt) 266-265(1pt)

37. How many feet is line K.1-K.2? (3 points) _____

99ft 112-108(1pt) 107-103(2pt) 102-96(3pt) 95-90(2pt) 89-85(1pt)

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

38. (2 points) sq.ft. 12,771 sqft 14,048-13,401(1pt), 13,410-12,132(2pt) 12,131-11,493(1pt)

39. (2 points) acres .29ac..83-.32(1pt) .31-.27(2pt) .26-.25(1pt)

L.

40. What is this tool? (2 points) Clinometer

41. What is the percent slope from L.1 to L.2? (2 points) -16%(2pt), 15%-17%(1pt)

M.

42. What disorder created this odd growth? (2 points) Canker

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Business Problem
You are evaluating the timber in this stand for Mrs. Jones. She has 40 acres of timber she would like to sell. Your task is to figure out the volume of the major species, the total volume and make an estimate on how much the standing timber should bring. Use the information below, the attached plot data, and the attached delivered timber price list.

You think that in this area, with this quality of timber and this distance from the mill, the standing timber should bring 60% of the delivered log value.

Notes:
You will need to determine the total acreage sampled.

Round to the nearest MBF to figure the total species volume in the stand and use that number to complete the remaining questions.

You have already figured the volume and value for the hickory. Don't forget to include it in your totals.

43. What is the BF volume per acre for white oak? 5024 bf
44. To the nearest MBF, what is the total stand volume of white oak? 201MBF
45. How much do you expect the white oak logs to bring at the mill? $120,600
46. How much do you expect the standing white oak to bring? $ 72,360

47. What is the BF volume per acre for red oak? 2510 bf
48. To the nearest MBF, what is the total stand volume of red oak? 100 MBF
49. How much do you expect the red oak logs to bring at the mill? $45,000
50. How much do you expect the standing red oak to bring? $27,000

51. What is the BF volume per acre for yellow-poplar? 2326bf
52. To the nearest MBF, what is the total stand volume of yellow-poplar? 93MBF
53. How much do you expect the yellow-poplar logs to bring at the mill? $27,900
54. How much do you expect the standing yellow-poplar to bring? $16,740

55. What is the total volume in the stand? 464 MBF
56. What is your estimate of the delivered value of the timber? $214,500
57. What is your estimate of the stumpage value of the timber? (4 points)
$ 128,700
58. In reality, these five plots would not provide enough data to give a very accurate estimate of the stand volume and value. Why? (2 points)
limited acreage sampled, plot data not uniform, or other reasoned answers

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

Work up of Hickory from Plot Data

Volume per acre - 1746bf
Stand volume - 70MBF
Estimated delivered log price - $21,000
Estimated stumpage price - $12,600

Plot data taken on the Jones Farm 10/30/2014
The 5 plots are 1/10 acre plots taken systematically through the stand.

1.

Species	DBH	HT	Volume
white oak	27	2.5	638
white oak	22	3	420
hickory	18	2.5	206

2.

Species	DBH	HT	Volume
red oak	26	3	663
hickory	16	2	125
white oak	18	1.5	144

3.

Species	DBH	HT	Volume
y-poplar	20	3	321
y-poplar	20	3	321
y-poplar	22	3	420
y-poplar	16	1.5	101

4

Species	DBH	HT	Volume
white oak	24	2.5	466
white oak	22	3.5	458
hickory	18	3	234
hickory	16	1	77

5.

Species	DBH	HT	Volume
red oak	28	2	592
white oak	26	1.5	386
hickory	24	1	231