

**State FFA Forestry 2019 Contest
Chainsaw Practicum (50 Points)**

This practicum consists of 7 multiple choice and 3 true-false questions, each worth 5 points. Mark your answers on the front side of the scantron answer sheet. DO NOT mark on this exam.

Multiple choice questions



1. In the image above, what is number "1" pointing toward?
 - a) Front handle (handbar)
 - b) Chain catcher
 - c) Throttle trigger
 - d) Front hand guard

2. When felling a tree, what is the minimum number of tree lengths the nearest person should be to the chainsaw operator?
 - a) 1 tree length away
 - b) 1.5 tree lengths away
 - c) 2 tree lengths away
 - d) 2.5 tree lengths away

3. You purchased 4 gallons (512 ounces) of gasoline for your chainsaw. Approximately how much two-stroke engine oil do you need to add to the gas?
 - a) 1 ounce
 - b) 5 ounces
 - c) 10 ounces
 - d) 50 ounces

4. Which of the following is **NOT** recommended as proper protective apparel/attire when operating a chainsaw?
- a) Sturdy boots with nonslip soles
 - b) Long, loose-fitting clothing
 - c) Ear plugs or ear muffs
 - d) Gloves
5. Which of the following would you not do when filing a chain to sharpen it?
- a) File from the outside to the inside of the cutter
 - b) Only file on the forward stroke, lift the file off the cutter on the backstroke
 - c) Check angles with the filing gauge
 - d) Use a piece of hardwood to remove burrs from the cutting edge
6. What is the name of the reactive force which may occur when the moving saw chain near the upper quadrant of the bar nose contacts a solid object or is pinched?
- a) Pushback
 - b) Pull-in
 - c) Kickback
 - d) Pull-out
7. How much hinge should be left uncut during the felling cut when using the conventional and open-face felling cut techniques?
- a) 5% of the tree diameter
 - b) 10% of the tree diameter
 - c) 15% of the tree diameter
 - d) 20% of the tree diameter

True-False questions

For the following true or false questions, mark A on the scantron form if the statement is true and B if the statement is false.

True False

8. A B The minimum octane rating for fuel is 89 with no more than 15% ethanol content.
9. A B At the correct idle speed, the saw chain should be moving slowly around the guide bar.
10. A B Too much engine oil in the fuel mix, a dirty air filter and frequently operating the saw at part throttle (less than full speed) negatively affect the condition of the spark plug.

State FFA Forestry 2019 Contest Wood Identification (50 points)

Sample 1

- a. Red (Norway) pine
- b. Cherry
- c. Northern red oak
- d. White oak

Sample 6

- a. Northern white cedar
- b. Hackberry
- c. Black walnut
- d. Tamarack (Eastern larch)

Sample 2

- a. Ash
- b. Hackberry
- c. Ponderosa pine
- d. Butternut

Sample 7

- a. Red (Norway) pine
- b. Cherry
- c. Birch
- d. White pine

Sample 3

- a. Hickory
- b. Black walnut
- c. Eastern red cedar
- d. Aspen

Sample 8

- a. Douglas fir
- b. Northern red oak
- c. White pine
- d. Ash

Sample 4

- a. Elm
- b. Cottonwood
- c. Birch
- d. Spruce

Sample 9

- a. Butternut
- b. Basswood
- c. Douglas fir
- d. Eastern red cedar

Sample 5

- a. Basswood
- b. Northern white cedar
- c. Elm
- d. Spruce

Sample 10

- a. Sugar maple
- b. Tamarack
- c. Aspen
- d. Cottonwood

State FFA Forestry 2019 Contest
Product Scaling (50 points)

Lumber Scaling (BF = Board Feet)

11. Sample #11
- a. 5.3 BF
 - b. 7.0 BF
 - c. 8.0 BF
 - d. 9.5 BF

12. Sample #12
- a. 1.8 BF
 - b. 2.7 BF
 - c. 3.4 BF
 - d. 4.5 BF

13. Sample #13
- a. 3.4 BF
 - b. 4.7 BF
 - c. 5.0 BF
 - d. 7.6 BF

14. Sample #14
- a. 4.5 BF
 - b. 5.8 BF
 - c. 7.8 BF
 - d. 8.5 BF

Log Scaling (BF = Board Feet)

15. Sample #15
- a. 30 BF
 - b. 40 BF
 - c. 50 BF
 - d. 60 BF

16. Sample #16
- a. 5 BF
 - b. 10 BF
 - c. 20 BF
 - d. 30 BF

17. Sample #17
- a. 20 BF
 - b. 30 BF
 - c. 40 BF
 - d. 50 BF

Pulpwood Scaling (assume 100 inch wood)

18. Sample #18 (1 inch = 1 foot)

- a. 2.9 Cords
- b. 4.2 Cords
- c. 5.6 Cords
- d. 7.5 Cords

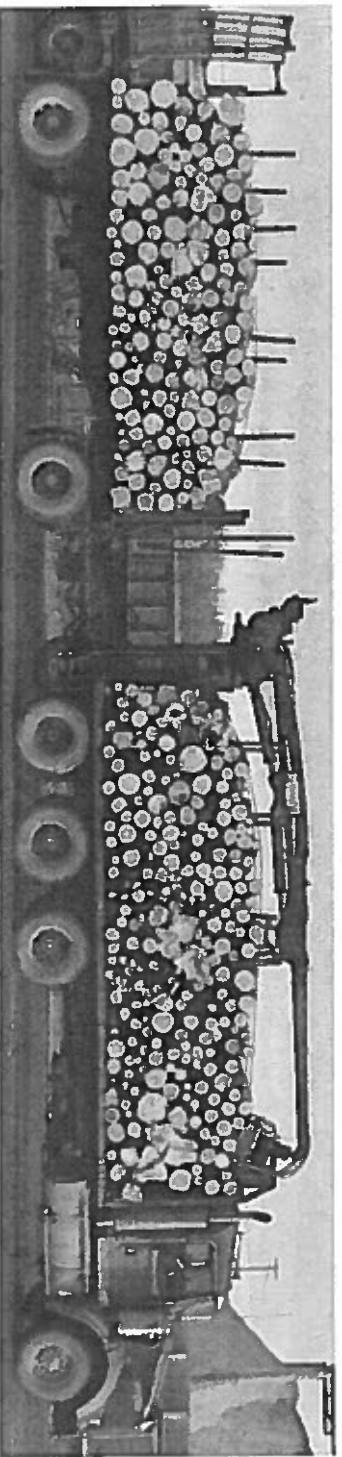
19. Sample #19 (1 inch = 1 foot)

- a. 2.4 Cords
- b. 3.8 Cords
- c. 6.6 Cords
- d. 7.5 Cords

20. The truck pictured below is hauling 100 inch wood on the two trailers. You use a height pole to determine heights at equally spaced points along each trailer. Given the length of each trailer and the heights at the intermediate points on each trailer, as given below, how many total cords is the truck hauling?

Trailer	Length (feet)	Equally spaced intermediate heights of load (feet)					
Front	20	4.5	5	5.5	5.5	5	5
Rear	16	4.5	5	5	5	5	$\frac{1}{2} \times 5$

- a. 10.1 Cords
- b. 10.9 Cords
- c. 11.7 Cords
- d. 14.4 Cords



Forestry Practicum Keys

Chainsaw Practicum

1. D
2. D
3. C
4. B
5. A
6. C
7. B
8. B
9. B
10. A

Wood ID Practicum

1. B
2. A
3. B
4. D
5. B
6. B
7. A
8. B
9. A
10. A

Product Scaling

11. C
12. B
13. C
14. B
15. D
16. B
17. B
18. A
19. C
20. C

**FFA Forestry CDE
Log Scaling Volume Table**

On your data sheet, record individual tree scaling diameter (diameter inside bark) to the nearest inch and log length to the nearest even foot rounding down. Then utilizing that diameter and log length information, determine individual section board foot content from the table below.

Log Volume (Scribner Decimal C Rule)

Small-end diameter inside bark (inches)	Log Length (feet)									
	8	10	12	14	16	18	20			
6	5	10	10	10	20	20	20			
7	10	10	20	20	30	30	30			
8	10	20	20	20	30	30	30			
9	20	30	30	30	40	40	40			
10	30	30	30	40	60	60	60			
11	30	40	40	50	70	80	80			
12	40	50	60	70	80	90	100			
13	50	60	70	80	100	110	120			
14	60	70	90	100	110	130	140			
15	70	90	110	120	140	160	180			
16	80	100	120	140	160	180	200			
17	90	120	140	160	180	210	230			
18	110	130	160	190	210	240	270			
19	120	150	180	210	240	270	300			
20	140	170	210	240	280	310	350			
21	150	190	230	270	300	340	380			
22	170	210	250	290	330	380	420			
23	190	230	280	330	380	420	470			
24	210	260	300	350	400	450	500			
25	230	290	340	400	460	520	570			
26	250	310	370	440	500	560	620			
27	270	340	410	480	550	620	680			
28	290	360	440	510	580	650	730			
29	310	380	460	530	610	680	760			
30	330	410	490	570	660	740	820			
31	360	440	530	620	710	800	890			
32	370	460	550	640	740	830	920			
33	390	490	590	690	780	880	980			
34	400	500	600	700	800	900	1000			

FFA Forestry CDE Timber Cruising

On your score sheet, record individual tree DBH to the nearest inch and merchantable height to the nearest ½ sawlog converted to feet (e.g., 1 ½ sawlogs equals 24 feet). Then utilizing that diameter and height information, determine individual tree volume from the table below and record that information on your score sheet.

Tree Volume (Scribner Rule by Number of 16 foot logs)

Diameter breast high (inches)	Volume (board feet) when number of 16-foot logs is:					
	½	1	1 ½	2	2 ½	3
10	17	28	36	44	48	52
11	22	38	49	60	67	74
12	28	47	61	75	85	95
13	34	58	76	94	107	120
14	40	69	92	114	130	146
15	47	82	109	136	157	178
16	54	95	127	159	185	211
17	63	109	146	184	215	246
18	72	123	166	209	244	280
19	81	140	190	240	281	322
20	90	157	214	270	317	364
21	100	176	240	304	358	411
22	111	194	266	338	398	458
23	123	214	294	374	441	508
24	137	234	322	409	484	558
25	149	258	355	452	534	617
26	165	281	388	494	585	676
27	179	304	420	536	636	736
28	195	327	452	578	686	795
29	210	354	491	628	746	864
30	277	382	530	678	806	933

FORESTRY CONTEST

Contestant Name _____ Team Number _____

School _____ Code Number _____

Tally Sheet for Timber Cruising (50 points)

Record the DBH to the nearest inch, merchantable height in sawlogs, and sawlog volume in board feet for each of the marked trees.

To estimate merchantable height, use a minimum top diameter inside bark of 8 inches and a minimum log length of 8 feet ($\frac{1}{2}$ sawlog). If the tree includes three 8-foot half sawlogs, merchantable height would be properly recorded on the tally sheet as 1.5 sawlogs.

Tree No.	DBH	Merchantable Height (num. of 16-foot logs)	Sawlog Volume
1			
2			
3			
4			
5			
6			
7			
8			
9		X	X

Note: Please write legibly on this form as it will be hand-scored. Nothing is to be entered on the scantron bubble sheet.

FFA Forestry Contest: Tree & Forest Disorders (50 points)

List of codes to enter on Scantron bubble sheet

Identify 10 tree and forest disorders from the following list at five points each for a total of 50 points. Enter your answers on the provided Scantron bubble sheet.

- | | |
|--|--|
| 301. Ash anthracnose | 312. Insect (cynipid wasp) gall on bur oak |
| 302. Bark damage from deer scrape | 313. Japanese beetle |
| 303. Black knot (or black rot) of cherry | 314. Maple leaf galls |
| 304. Bronze birch borer | 315. Oak wilt |
| 305. Deer browse damage | 316. Pine bark beetle |
| 306. Eastern pine gall rust | 317. Rhizosphaera spruce needlecast |
| 307. Emerald ash borer | 318. Thousand cankers of walnut |
| 308. Forest tent caterpillar | 319. White pine blister rust |
| 309. Frost crack | 320. White pine weevil |
| 310. Heart rot | 321. Witches broom |
| 311. Hypoxylon canker on aspen | |

FFA Forestry Contest: Forestry Tools & Equipment (50 pts)

List of codes to enter on Scantron bubble sheet

Identify the 10 displayed forestry tools or pieces of equipment from the following list at five points each for a total of 50 points. Enter your answers on the provided Scantron bubble sheet.

501. Aerial photo	520. Fire swatter (flap)	540. Pruning saw
502. Angle gauge (Cruz-all style)	521. Forwarder	541. Plastic flagging
503. Backpack fire pump	522. Fire weather kit	542. Pruning shears
504. Bow saw	523. GIS map	543. Pulaski-Forester Axe
505. Bulldozer	524. GPS receiver	544. Relaskop
506. Canthook	525. Hand compass	545. Safety glasses
507. Chainsaw	526. Hand lens	546. Safety hardhat
508. Chainsaw chaps	527. Harvester/processor	547. Shearing knife
509. Chipper/Grinder	528. Hip chain	548. Skidder
510. Clinometer	529. Hookerom	549. Slasher
511. Containerized seedling block	530. Increment borer	550. Soils map
512. Cruising vest	531. Laser rangefinder	551. Steel tape
513. Data recorder	532. Log truck	552. Stereoscope
514. Diameter tape	533. Logger's tape	553. Tally book
515. Dot grid	534. Lopping shears	554. Topographic map
516. Drip torch	535. Mattock	555. Tree caliper
517. Ear protectors	536. Peavy	556. Tree injector/hypo hatchet
518. Feller-buncher	537. Planimeter	557. Tree marking gun
519. Fire rake	538. Plant press	558. Tree stick
	539. Planting hoe or bar	559. Wedge prism