FOR 274 Assignment 9 [50 points] Name**: _____**

This assignment should be completed and handed in to the assignment box in the FRFS office by noon on Monday 2nd of November. Partial credit will only be given for incorrect answers if you show your work.

1. If a tree with a DBH of 8inches grows with a mean basal-area increment of 0.0345 sq ft per year for 4 years, what will be the diameter at the end of the 4 years?

2. If a tree with a DBH of 6 inches grows with a mean basal-area increment of 0.021 sq ft per year for 15 years, what will be the diameter at the end of the 15 years?

3. What do we look for in site trees for the assessment of site index?

4. Answer the following questions from the table summarizing a variable radius cuise.

Plot	Count
1	6
2	7
3	9
4	5
5	6
6	4
7	3
8	7
9	8
10	11
11	5
12	7
13	6
14	8
15	6

a) Calculate the mean and standard deviation of basal area per acre assuming the cruise was done with a 30 BAF prism.

b)Calculate the mean and standard deviation of basal area per acre assuming the cruise was done with a 20 BAF prism.

5. Calculate the stocking level for a 1/10 acre Douglas-fir (*Pseudotsuga menziesii*) plot with a maximum SDI=595 and the following plot data

DBH	DBH	DBH
14	15	13
16	18	19
19	14	14
20	12	18
17	22	17
16	17	15
23	15	16

6. Calculate the relative spacing for the following stands:
a) 285 trees per acre; 78 feet mean height

b) 650 trees per acre; 38 feet mean height

c) 145 trees per acre; 122 feet mean height

d) 240 trees per acre; 95 feet mean height

Challenge Problem [Extra C redit - up to 50 points!]
You are the Forest Manager on the Gifford Pinchot National Forest and you have been tasked by your distric office to create a stand table for Douglas-fir (*Pseudotsuga menziesii*), relatingage and tree volume. You have the table on the following page depicting the last 40 years from a continuous forest inventory plot and you know that Douglas-fir follows this allometric equation in your area: Vol cu ft = -0.44670 + 0.00216 * dbh^2 * Ht

Year	Tree	Age	DBH	Height	Year	Tree	Age	DBH	Height	Year	Tree	Age	DBH	Height
1970	1	10	2.9	21.0	1985	1	25	12.5	53.9	2000	1	40	30.4	84.0
1970	2	5	1.2	13.0	1985	2	20	8.3	40.7	2000	2	35	23.4	73.0
1970	3	15	5.3	32.0	1985	3	30	17.3	66.8	2000	3	45	37.0	98.9
1970	4	10	3.0	22.0	1985	4	25	12.9	56.4	2000	4	40	31.5	88.0
1970	5	20	7.2	41.0	1985	5	35	20.4	73.5	2000	5	50	37.9	103.3
1970	6	5	1.4	12.0	1985	6	20	9.6	37.6	2000	6	35	27.3	67.4
1970	7	20	7.5	43.0	1985	7	35	21.3	77.1	2000	7	50	39.5	108.3
1970	8	25	9.8	51.0	1985	8	40	23.9	79.6	2000	8	55	38.3	105.9
1970	9	10	2.7	19.0	1985	9	25	11.6	48.7	2000	9	40	28.3	76.0
1970	10	15	4.9	29.0	1985	10	30	15.9	60.5	2000	10	45	34.2	89.6
1970	11	5	1.0	10.0	1985	11	20	6.9	31.3	2000	11	35	19.5	56.2
1970	12	20	6.9	39.0	1985	12	35	19.6	69.9	2000	12	50	36.3	98.2
1970	13	15	5.4	36.0	1985	13	30	17.6	75.1	2000	13	45	37.7	111.3
1975	1	15	5.4	30.5	1990	1	30	17.5	63.5	2005	1	45	37.4	94.1
1975	2	10	2.9	20.8	1990	2	25	12.4	53.3	2005	2	40	30.2	83.2
1975	3	20	8.2	43.2	1990	3	35	23.3	77.5	2005	3	50	43.2	108.8
1975	4	15	5.6	31.9	1990	4	30	18.1	66.6	2005	4	45	38.7	98.6
1975	5	25	10.8	53.7	1990	5	40	26.3	83.8	2005	5	55	42.3	111.5
1975	6	10	3.4	19.2	1990	6	25	14.5	49.2	2005	6	40	35.2	76.8
1975	7	25	11.3	56.3	1990	7	40	27.4	87.9	2005	7	55	44.0	117.0
1975	8	30	13.7	60.2	1990	8	45	29.4	89.1	2005	8	60	42.0	113.3
1975	9	15	5.0	27.6	1990	9	30	16.3	57.5	2005	9	45	34.8	85.2
1975	10	20	7.6	39.2	1990	10	35	21.5	70.2	2005	10	50	40.0	98.6
1975	11	10	2.4	16.0	1990	11	25	10.3	41.0	2005	11	40	25.2	64.0
1975	12	25	10.4	51.1	1990	12	40	25.2	79.7	2005	12	55	40.5	106.1
1975	13	20	8.4	48.6	1990	13	35	23.7	87.1	2005	13	50	44.1	122.4
1980	1	20	8.3	41.1	1995	1	35	23.6	73.7	2010	1	50	43.8	103.5
1980	2	15	5.3	30.2	1995	2	30	17.3	62.9	2010	2	45	37.1	93.2
1980	3	25	12.3	56.6	1995	3	40	30.0	88.3	2010	3	55	48.2	117.5
1980	4	20	8.6	43.1	1995	4	35	24.4	77.2	2010	4	50	45.3	108.5
1980	5	30	15.1	63.4	1995	5	45	32.4	93.9	2010	5	60	46.3	119.3
1980	6	15	6.2	27.8	1995	6	30	20.2	58.1	2010	6	45	43.3	86.0
1980	7	30	15.8	66.5	1995	7	45	33.7	98.4	2010	7	60	48.2	125.1
1980	8	35	18.5	69.8	1995	8	50	34.4	98.0	2010	8	65	44.9	120.1
1980	9	20	7.7	37.2	1995	9	35	21.9	66.7	2010	9	50	40.7	93.7
1980	10	25	11.4	51.3	1995	10	40	27.8	80.0	2010	10	55	44.6	106.5
1980	11	15	4.4	23.2	1995	11	30	14.5	48.4	2010	11	45	31.0	71.7
1980	12	30	14.5	60.3	1995	12	45	31.0	89.3	2010	12	60	44.3	113.5
1980	13	25	12.6	63.7	1995	13	40	30.6	99.3	2010	13	55	49.1	132.2