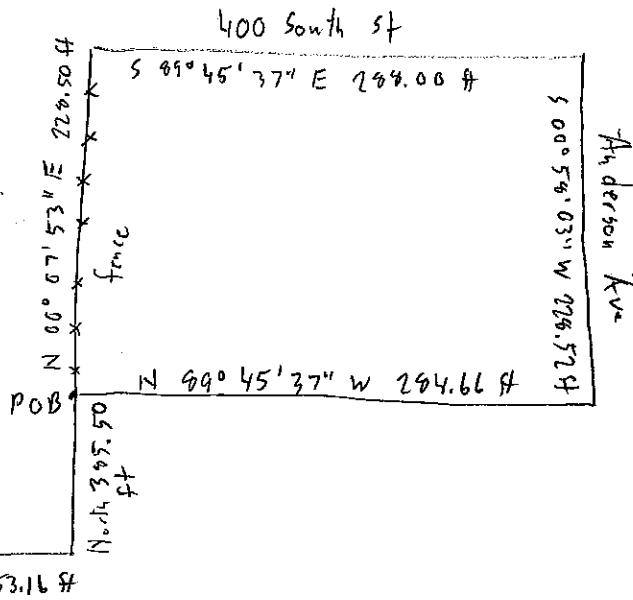


Problem A



SE cor-
sec 32
T75
R3E
S1B+14

Problem 1

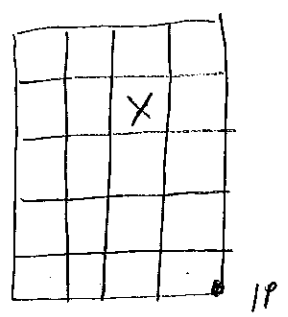
			Lat	Dep	N	E
A					0.00	0.00
	N 0° 07' 53" E	226.50	226.50	0.52		
B					226.50	0.52
	S 89° 45' 37" E	294.00	-1.20	294.00		
C					227.30	288.52
	S 0° 54' 03" W	226.52	-224.49	-3.06		
D					-1.19	294.66
	N 89° 45' 37" W	294.66	1.19	-294.66		
A					0.00	0.00

Area by coordinates

		0.00	0.00		
	0.60	226.50	0.52	0.00	
	118.20	227.30	288.52	65926.62	
	-343.34	-1.19	294.66	64703.22	
	0.00	0.00	0.00	0.00	
	-225.14			130630.04	
	130630.04 - (-225.14) = 130855.14				
					÷ 2
					65428 ft ²
					÷ 43560
					1.50 ac

ANSWER C

Problem B



6	5	4	3	2	1
7	8	9	10	11	12
	X	16	15	14	13

Problem 2

60 acres

ANSWER A

Problem 3

$$\begin{array}{r}
 PVI \\
 - L/2 \\
 \hline
 PVC
 \end{array}
 \qquad
 \begin{array}{r}
 26 + 71.00 \\
 \underline{2.00} \\
 26 + 71.00
 \end{array}$$

ANSWER D

Problem 4

$$PVI - \frac{1}{2}(g_1) = PVC$$

$$1465.84 - 200(-.032) = 1472.24$$

ANSWER C

Problem 5

$$\begin{array}{r}
 PVI \\
 + L/2 \\
 \hline
 PVT
 \end{array}
 \qquad
 \begin{array}{r}
 26 + 71.00 \\
 \underline{2.00} \\
 30 + 71.00
 \end{array}$$

ANSWER B

Problem 6

$$PVI + \frac{1}{2}(g_2) = PVI$$

$$1465.84 + 200(.018) = 1469.44$$

ANSWER A

Problem 7

$$x' = \frac{g_1 L}{g_1 - g_2} = \frac{-0.032(200)}{-0.032 - .018} = 256$$

$$\begin{aligned}
 Low Pt &= PVC + x' \\
 &= 26 + 71.00 + 256 = 29 + 27.00
 \end{aligned}$$

ANSWER A

Problem 8

$$y = \frac{r}{2} x^2 + g_1 x + PVC$$

$$r = \frac{g_2 - g_1}{L} = \frac{.05}{400} = .000125$$

$$= \frac{.000125}{2} (256)^2 + (.032)(256) + 1472.24$$

$$= 1468.14$$

ANSWER D

Problem 9

<u>Sta</u>	<u>Cut ft²</u>	<u>Cut ft³</u>	<u>Fill ft²</u>	<u>Fill ft³</u>
8+00	0		854	
9+00	0	0	376	61500
9+35	0	0	92	8190
10+10	60	1500	23	4312
11+00	204	12060	0	690
12+00	523	36550	0	0
13+00	744	63550	0	0
		113660		74692
		+ 27		÷ 27
		<u>4209 yd³</u>		<u>2766 yd³</u>

ANSWER B

Problem 10

$$R = \frac{5729.5\%}{d_a} = \frac{5729.5}{5.5} = 1041.74$$

$$T = R \tan \frac{\Delta}{2} = (1041.74) \tan \frac{27^{\circ}22'}{2} = 253.63$$

$$PC = PI - T = (255 + 81.03) - (2 + 53.63) = 253 + 27.40$$

ANSWER C

Problem 11

$$L = \pi R \frac{\Delta}{180} = 1041.74 \pi \frac{27^{\circ}22'}{180} = 497.57$$

$$PT = PC + L = (253 + 27.40) + (4 + 97.57) = 258 + 24.97$$

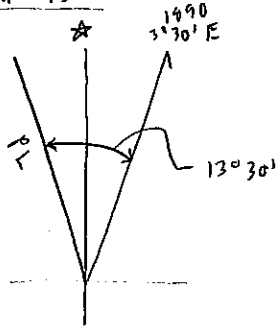
ANSWER D

Problem 12

$$\text{Defl Angle} = \frac{\Delta}{2} = \frac{27^{\circ}22'}{2} = 13^{\circ}41'$$

ANSWER E

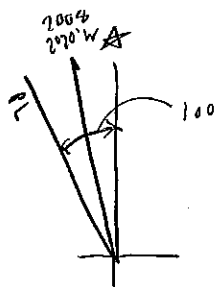
Problem 13



True bearing = $13^{\circ}30' - 3^{\circ}30' = N10^{\circ}W$

ANSWER B

Problem 14



Mag. Brng = $10^{\circ} - 2^{\circ}20' = N7^{\circ}40'W$

ANSWER B

Problem 15

416.55 = 4.1655 tape lengths

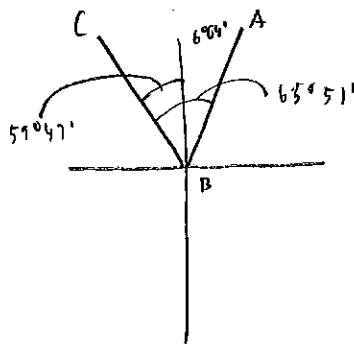
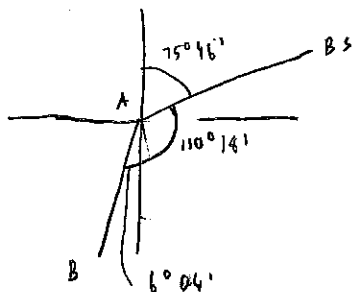
$4.1655 \times .02 \text{ error} = +.08$

$C_T = .00000645 (T - 68) L = .00000645 (32 - 68)(416.55) = -.10$

$416.55 + .08 - .10 = 416.53$

ANSWER A

Problem C



Lat AB = $\cos 6^{\circ}04' (437.80) = -435.35$

Dep AB = $\sin 6^{\circ}04' (437.80) = -46.27$

Lat BC = $\cos 59^{\circ}47' (435.71) = 219.26$

Dep BC = $\sin 59^{\circ}47' (435.71) = -376.51$

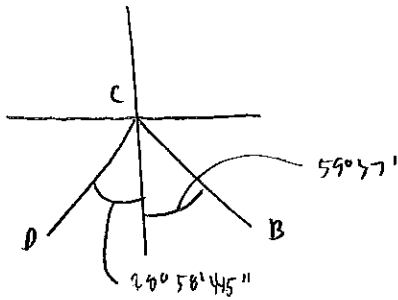
Coordinates of C

N	E
0	0
-435.35	-46.27
<u>+219.28</u>	<u>-376.51</u>
-216.07	-422.76

$$\text{Lat } CD = (-516) - (-216.07) = -301.93$$

$$\text{Dep } CD = (-570) - (-422.76) = -147.24$$

$$\text{Brgs } CD = \text{atan} \frac{-147.24}{-301.93} = S 26^{\circ} 56' 45'' W$$



$$\angle BCD = 88^{\circ} 45' 45''$$

$$\text{dist } CD = \sqrt{-147.24^2 + 301.93^2} = 345.14 \text{ ft}$$