Solution

1. Locate plant at Winston-Salem:

	x (mi mark)	d (mi)	FG (tons)	BOM q (tons)	r ($/ton-mi)	w ($/mi)	TC ($)	cum w	
NF	189.999957						13700		
Asheville	50	140		2	120	0.33	40.00	5599.998	40.00	
Statesville	150	40	10		10	1.00	10.00	399.9996	50.00	
Winston-Salem	190	4.3E-05	20		20	1.00	20.00	0.000868	70.00	*
Durham	270	80		0.5	30	0.33	10.00	800.0004	80.00	
Wilmington	420	230	30		30	1.00	30.00	6900.001	110.00	
Total			60				110.00			
						W/2=	55.00			

2. Locate at Winston-Salem:

	x (mi mark)	d (mi)	FG (tons)	BOM q (tons)	r ($/ton-mi)	w ($/mi)	TC ($)	cum w	
NF	190.000012						24105.5		
Asheville	50	140	41		41	1.00	41.00	5740	41.00	
Asheville	50	140		0.5	90.5	0.20	18.10	2534	59.10	
Statesville	150	40	28		28	1.00	28.00	1120	87.10	
Winston-Salem	190	1.2E-05	40		40	1.00	40.00	0.000482	127.10	*
Durham	270	80	32		32	1.00	32.00	2560	159.10	
Raleigh	295	105	22		22	1.00	22.00	2310	181.10	
Raleigh	295	105		1.5	271.5	0.20	54.30	5701.499	235.40	
Wilmington	420	230	18		18	1.00	18.00	4140	253.40	
Total			181				253.40			
						W/2=	126.70			

3. Locate tool crib at $(x, y) = (61, 37)$: $W = 193$, $W/2 = 96.5$

	x	y	d	q	r	w	TC
NF	61	37					7,959.00
1	38	2	58	13	1.00	13.00	754.00
2	68	19	25	55	1.00	55.00	1,375.00
3	9	59	74	21	1.00	21.00	1,554.00
4	4	6	88	22	1.00	22.00	1,936.00
5	61	37	0	26	1.00	26.00	0.00
6	61	63	26	43	1.00	43.00	1,118.00
7	2	72	94	13	1.00	13.00	1,222.00