Answers to Problems

1. Style 493: .2(3,750) = 750

750/5 = 150 per week

Because the pants are produced in batches of 250 we must plan production that averages 150 per week, but occurs in batches of 250. The following is one possibility.

Week	1	2	3	4	5
Forecast Demand	150	150	150	150	150
Customer orders booked					
Projected on-hand inventory	100	200	50	150	0
Master schedule	250	250		250	

3. Baseball bats: .80(5,000) = 4,000

4,000/5 = 800 bats per week

On-hand inventory at the end of March = 800

April

Week	1	2	3	4	5
Forecast Demand	800	800	800	800	800
Customer Orders Booked	900	875	850	745	720
Projected On-Hand	1900	1025	175	1375	575
Master Schedule	2000			2000	

5. Audit and tax hours required

Week	1	2	3	4
* Audit	25	40	50	45
** Tax	20	16	18	14

* Audits requested x 5
** Tax preparation requested x 2

Employee hours available per week

	Ernie	Winnie	Total
Audit	30	10	40
Tax	20	30	50

If each employee's audit and tax time is fixed, there will be a shortage of audit employee time in weeks 3 and 4.

If the employee's time is flexible between audit and tax there is sufficient employee time all four weeks.

7. Based on the answer in Problem 6, sufficient capacity does not exist for either lathe or finishing in weeks 1 and 4. Because no bats are scheduled for production in weeks 2 or 5, the easiest solution may be to shift some production into those weeks. The only concern is that enough be produced in weeks 1 and 4 to meet demand in those weeks. Producing 1,000 in each of the first four weeks would easily cover demand while not overloading the production facilities. If for some reason this is not desirable then overtime would have to be scheduled for the lathe and finishing operations.

9.

Gross Requirements		*2000	1600	1800	1200	1800	1600
Scheduled Receipts			2500				
Proj. End. Inv.	2500	500	1400	0	0	0	0
Net Requirements				400	1200	1800	1600
Planned Receipts				400	1200	1800	1600
Planned Order Releases		400	1200	1800	1600		

* (500 x 4)

11. Based on the preceding MRP tables, receiving the 32,000 ounces of beef bones in week 14 instead of week 13 means that only 300 ounces of beef bones will be available in week 13, meaning that only 100 (300/3) ounces of beef broth could be produced that week, making only 100 ounces available for making soup in week 14. With only 100 ounces of broth, only about 14 (100/7) cans of vegetable beef soup could be produced that week. Therefore, it would not be economical to produce any cans of vegetable beef soup in week 14. The solution would be to reschedule planned production of the 600 cans for that week into week 15, producing the following master schedule for vegetable beef soup.

Master Schedule

Week	12	13	14	15	16	17
12 oz. soup	1200	1500	0	1500	2000	1500

Times 7

Beef Broth

Gross Requirements		8400	10,500	0	10,500	14,000	10,500
Scheduled Receipts							
Proj. End. Inv.	9000	600	-0-	-0-	-0-	-0-	
Net Requirements			9900	-0-	10,500	14,000	10,500
Planned Receipts			9900	0	10,500	14,000	10,500
Planned Order Releases		9900	0	10,500	14,000	10,500	

Times 3

Beef Bones

Gross Requirements		29,700	0	31,500	42,000	31,500	
Scheduled Receipts				32,000			
Proj. End. Inv.	30,000	300	300	800	22,800	23,300	
Net Requirements					41,200	8700	
Planned Receipts					64,000	32,000	
Planned Order Releases			64,000	32,000			

13. a.

Master Schedule

Week	43	44	45	46	47
S400	2,000	2,400	3,000	2,300	2,700

Part# A38

Gross Requirements	2000	2400	3000	2300	2700

Part# B493

Gross Requirements	2000	2400	2400	2300	2700

b.

Master Schedule

Week	43	44	45	46	47
S400	2,000	2,400	3,000	2,300	2,700

Part# A38

Gross Requirements		2000	2400	3000	2300	2700
Scheduled Receipts			3000			
Proj. End. Inv.	3000	1000	1600	-0-	-0-	-0-
Net Requirements				1400	2300	2700
Planned Receipts				1400	2300	2700
Planned Order Releases		1400	2300	2700		

Part# 1438

Gross Requirements		2800	4600	5400		
Scheduled Receipts						
Proj. End. Inv.	3000	200	-0-	-0-		
Net Requirements			4400	5400		
Planned Receipts			4400	5400		
Planned Order Releases		4400	5400			

Part# B493

Gross Requirements		2000	2400	3000	2300	2700
Scheduled Receipts						
Proj. End. Inv.	3000	1000	-0-	-0-	-0-	-0-
Net Requirements			1400	3000	2300	2700
Planned Receipts			1400	3000	2300	2700
Planned Order Releases		1400	3000	2300	2700	

Part# 1395

Gross Requirements		2800	6000	4600	5400	
Scheduled Receipts			10,000			
Proj. End. Inv.	4000	1200	5200	600	-0-	
Net Requirements					4800	
Planned Receipts					4800	
Planned Order Releases		4800				

c. 1297 (2 x planned order releases of A38)

Gross Requirements	2800	4600	5400		

Scheduled Receipts						
Proj. End. Inv.	4500	1700	-0-	-0-		
Net Requirements			2900	5400		
Planned Receipts			2900	5400		
Planned Order Releases		2900	5400			

Part# 6438

Gross Requirements		2900	5400			
Scheduled Receipts						
Proj. End. Inv.	5000	2100	-0-			
Net Requirements			3300			
Planned Receipts			3300			
Planned Order Releases		3300				

4217 (5 x planned order releases for 1297 + 4 x planned order releases for B493)

Gross Requirements		20,100	39,000	9,200	10,800	
Scheduled Receipts						
Proj. End. Inv.	60,000	39,900	900	-0-	-0-	
Net Requirements				8,300	10,800	
Planned Receipts				8,300	10,800	
Planned Order Releases		8,300	10,800			

15.

Week	1	2	3	4	5	6
Part A: 1 hr/batch (setup) + .30 x (orders)	*31	0	16	91	16	31
Part B: 2 hrs/batch (setup) + .20 x (orders)	42	42	22	42	22	0
TOTAL	73	42	38	133	38	31

* 1 + [.30 x 100]