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To the Teacher

The problems presented in these worksheets are intended for students studying **Discrete Mathematics** and assume no calculus background. Problems dealing with optimisation should be solved using methods other than calculus.

Some problems need to be done prior to others and are listed below:

Problems 5 and 6 before 7 and 8

Problem 12 before 13

Problem 16 before 17

Problem 21 before 23

Problem 24 before 25

Those parts of the problems for which a solution is easily presented are given. The interpretive and descriptive facet of each problem should be fully discussed with the class in order to highlight:

- (a) the characteristic of the model, and
- (b) the discrepancies between the model and reality.

Year 11 is often the first experience students have with problem solving and the problems should be presented with significant structure. Year 12 students can be expected to provide their own structure; hence, wherever appropriate, problems have been stated in general terms only and students are to investigate the appropriate solutions. Obviously, the amount of teacher interaction will differ from student to student.

26. Book Sellers

(c) Month	No. of Books	3 Month Total	3 Month moving Average
1	1500		
2	2000	4500	1500
3	1000	4800	1600
4	1800	5019	1673
5	2219	5100	1700
6	1081	5019	1673
7	1719	4800	1600
8	2000	4500	1500
9	781	4200	1400
10	1419	3981	1327
11	1781	3900	1300
12	700	3981	1327
13	1500	4200	1400
14	2000		

- (d)&(e) These computations show that the growth potential is static, with the 'average' number of books tending towards 1500 per month.
- (f) The three-month moving average.
- (g) Students answers will vary but should include a discussion on the fact that January (preceding the academic year) has the highest number of books sold. Not surprising.
- (h) $a = 1500$
 $b = 200$

