

THE TELEPHONE COMPANY

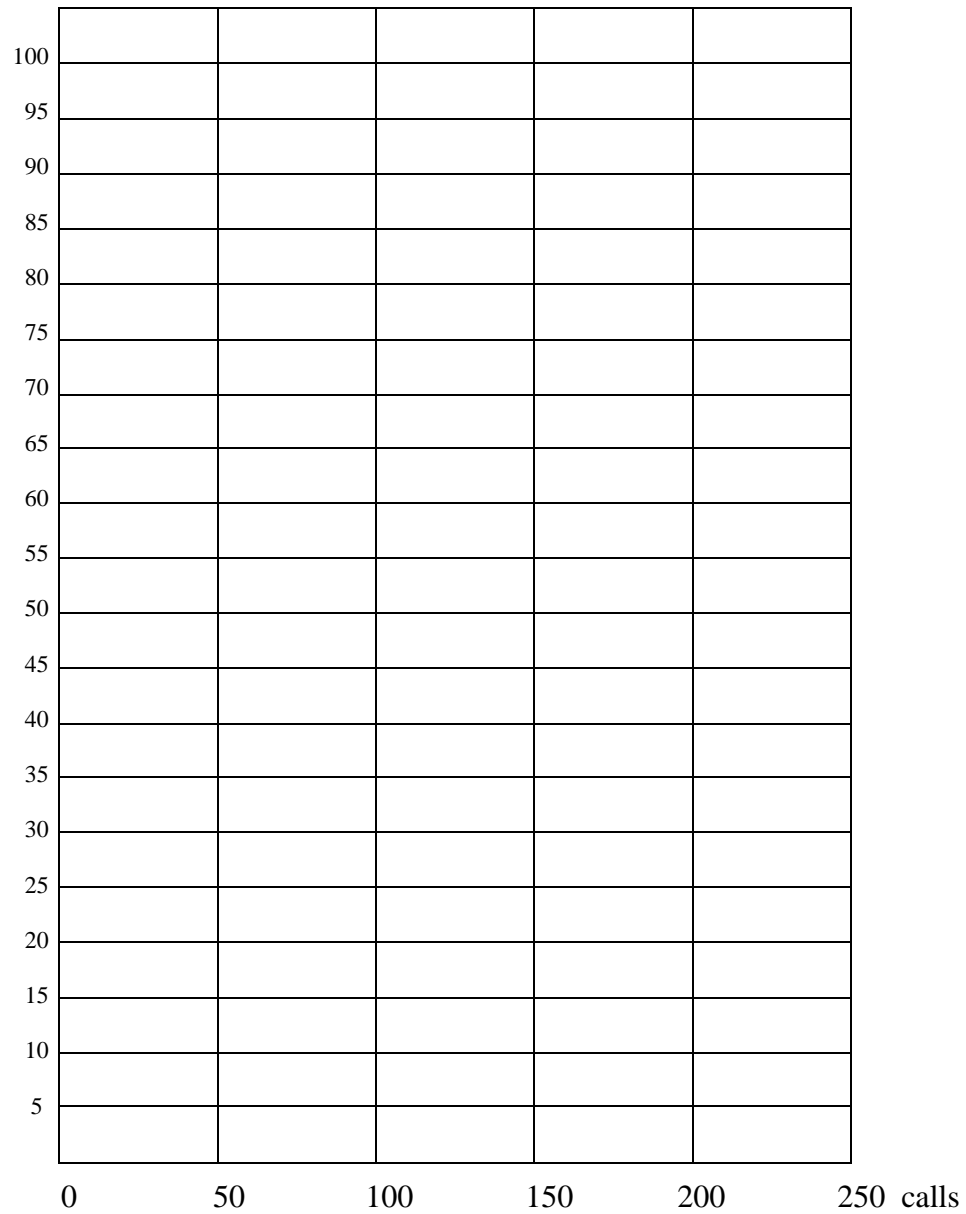
- (a) A telephone account is charged at a flat rate of \$50 for the first 100 calls (of any length), then at 30c for each extra call.

Fill in this table showing the charges for up to 250 calls.

x = number of calls	Number of extra calls (more than 100)	Charge for extra calls = \$0.30 per call	Charge for a month in \$
0	0	0	50
50	0	0	50
100	0	0	50
150	50		
200	100		
250	150		

(b) Draw the line graphs showing the charges for up to 250 calls.

COST \$



(c) Find the equations of the lines and state the domains carefully.

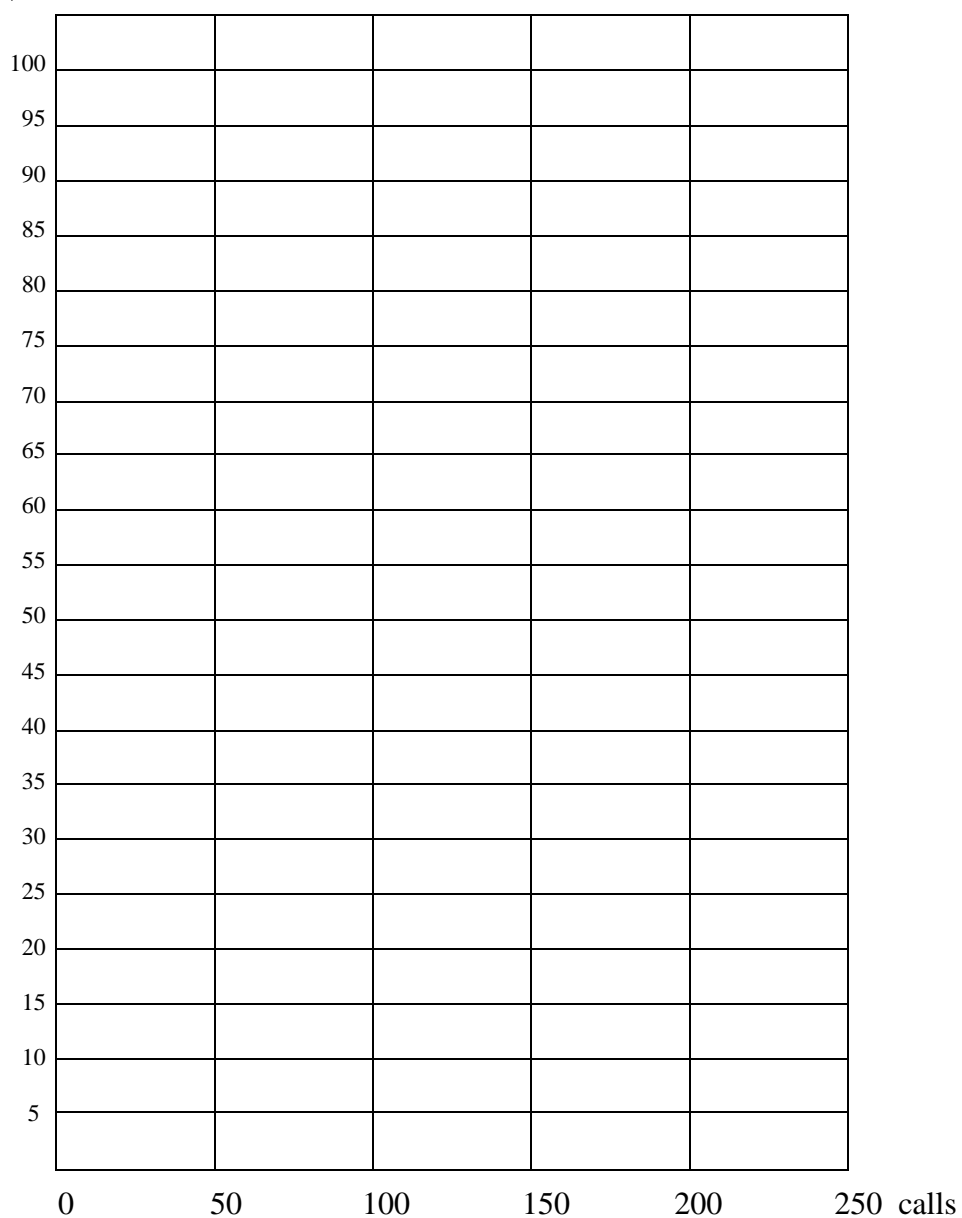
- (d) It is decided to change the charging system so that people pay \$20 per month for the 1st 50 calls then an extra cost of \$0.40 per call.

Fill in this table showing the charges for up to 250 calls.

x = number of calls	Number of extra calls (more than 50)	Charge for extra calls = \$0.40 per call	Charge for a month in \$
0	0	0	20
50	0	0	20
100	50		
150	100		
200	150		
250	200		

- (e) Draw the line graphs showing the charges for up to 250 calls.

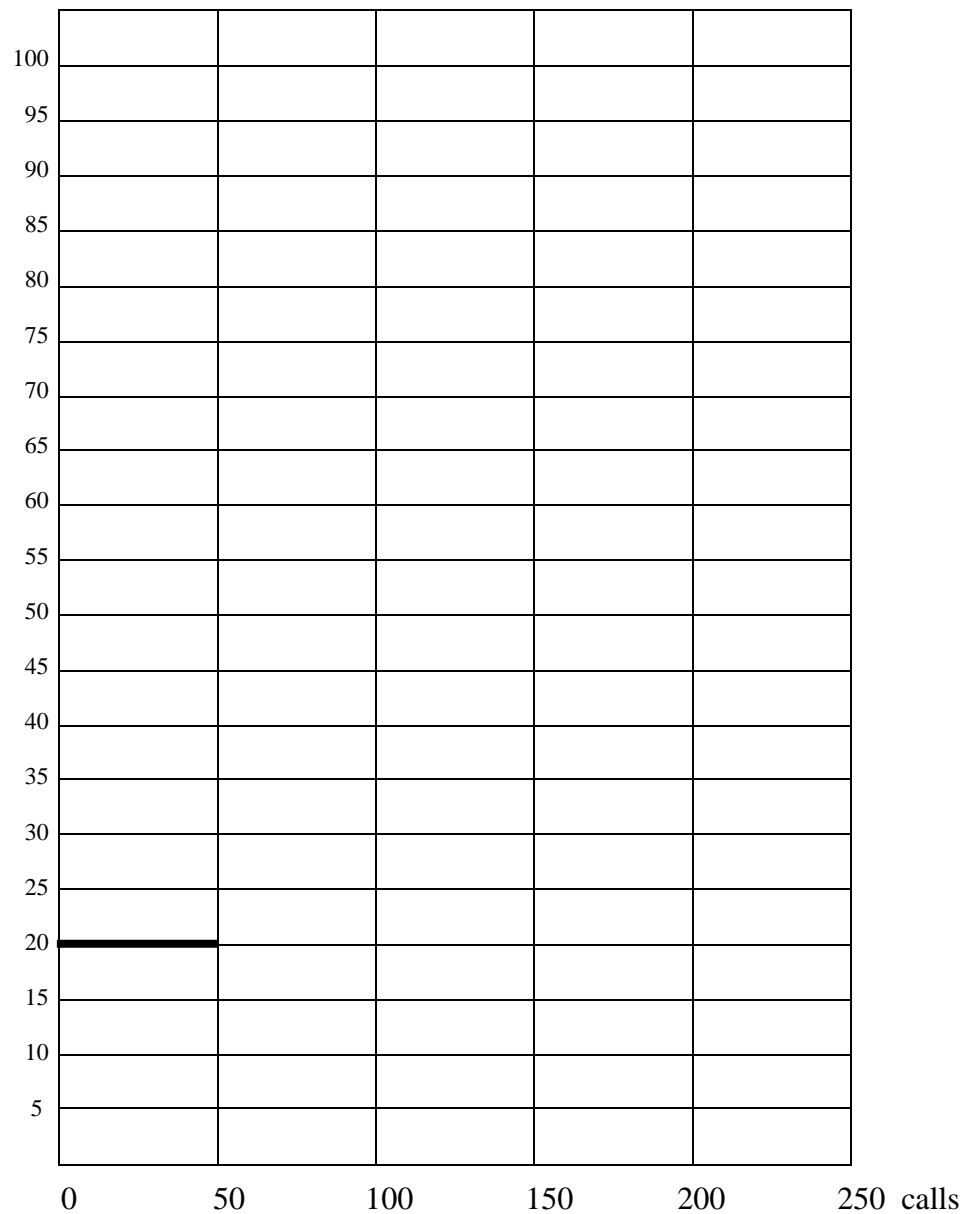
COST \$



(f) Find the equations of the lines and state the domains carefully.

- (g) The head of the costing department thought it would be a good idea if the charge for extra calls could be changed so that the new plan would cost the same as the original plan did for 250 calls. Show the required line on the graph below.

COST \$



- (h) What is the charge per call for calls over 50 under this system?
- (i) Find the equation of this new line for $50 \leq x \leq 250$
- (j) In this whole investigation state any limitations of the model you have used.