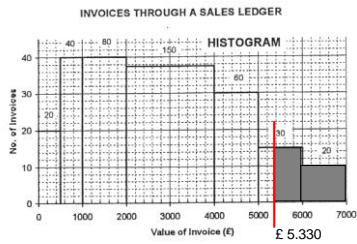


# 6.1



Solutions by E PARRY

# 6.2

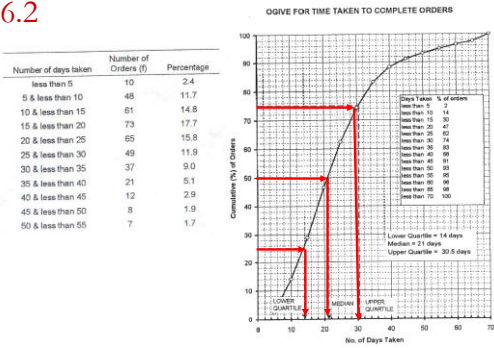
6.2 The following figures, relating to a homogeneous product were compiled from a company's records.

Number of days taken to complete order	Number of Orders
< 5	10
5 & < 10	48
10 & < 15	81
15 & < 20	73
20 & < 25	65
25 & < 30	49
30 & < 35	37
35 & < 40	21
40 & < 45	12
45 & < 50	8
50 & < 55	7
55 & < 60	6
60 & < 65	5
65 and over	10

- Obtain a cumulative percentage frequency distribution for the given distribution.
- Draw the ogive.
- From your ogive, obtain the median, quartiles and quartile deviation.
- The firm has an agreement to pay a penalty of £200 to the customer if the order takes 50 days or more to complete. On what percentage of orders will the firm pay this penalty? How much extra would need to be charged on all orders to cover the cost of penalties?
- Explain the meaning of the statistics in part (ii) above to the Managing Director of the company.

Solutions by E PARRY

# 6.2



Solutions by E PARRY

# 6.3

6.3 The Head of the Sales Department in a company dealing in house improvements was considering the data below showing the number of successful calls made by 50 sales people last month. A successful call is one where the household agrees to use a company agent.

20	10	17	22	35	43	29	34	12	24
24	32	34	13	40	22	34	21	39	12
10	49	32	33	29	26	33	34	34	22
24	17	18	34	37	32	17	36	32	43
12	27	43	32	36	26	36	32	20	21

- Classify the data into a table with class intervals of five units wide, i.e. 10 & under 15, 15 & under 20, etc.
- Obtain a percentage cumulative frequency distribution.
- Construct the ogive of this distribution.
- Obtain the median, quartile and quartile deviation, and explain the meaning of these statistics to the Head of Department.
- What percentage of the sales force will need extra training?

Solutions by E PARRY

# 6.3

Number of successful calls made by 50 Tele-sales people last month

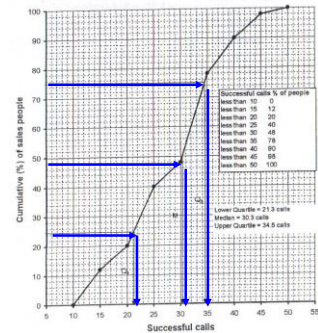
No. of successful calls	No. of people (Frequency)
10 & less than 15	6
15 & less than 20	4
20 & less than 25	10
25 & less than 30	4
30 & less than 35	15
35 & less than 40	6
40 & less than 45	4
45 & less than 50	1
Total	50

Number of successful calls made by 50 Tele-sales people last month

No. of successful calls	Cum f	Cum % of people
less than 10	0	0
less than 15	6	12.0
less than 20	10	20.0
less than 25	20	40.0
less than 30	24	48.0
less than 35	39	78.0
less than 40	45	90.0
less than 45	49	98.0
less than 50	50	100.0

Solutions by E PARRY

# 6.3



Solutions by E PARRY

# 6.4

6.4 The following data represent quarterly sales volumes for 40 selected companies.

17,884,000	15,985,000	42,200,000	13,523,000
49,147,000	20,310,000	3,330,000	7,880,000
3,824,000	11,265,000	1,855,000	9,023,000
3,824,000	5,233,000	20,900,000	6,145,000
9,232,000	2,979,000	1,659,000	42,789,000
5,143,000	33,380,000	20,770,000	6,146,000
2,141,000	17,768,000	18,071,000	42,800,000
5,050,000	41,626,000	12,003,000	6,840,000
3,669,000	37,738,000	40,786,000	21,346,000
13,164,000	39,914,000	7,846,000	25,637,000

- (a) Round these data to manageable numbers and express them in millions. Construct a suitable frequency distribution.
- (b) Develop a percentage frequency distribution for the data.
- (c) Construct a histogram as a graphical representation of the data.
- (d) Construct a cumulative percentage distribution.
- (e) Construct an ogive for the data.
- (f) (Optional) Use Minitab or Excel to establish the summary statistics for the data.

# 6.4

QUARTERLY SALES (£m)

17.9	15.1	42.2	13.5
49.7	20.5	5.5	8.0
3.6	11.6	1.9	9.0
3.8	5.9	23.9	6.1
9.2	3.0	1.1	42.8
5.1	33.4	20.8	6.1
2.1	17.8	18.0	42.8
5.1	41.6	12.0	6.8
3.7	37.7	40.8	21.9
13.6	39.9	7.8	25.8

Max = 49.7, Min = 1.1

So £10m is a reasonable class width giving 5 or 6 classes.

# 6.4

QUARTERLY SALES VOLUMES OF 40 COMPANIES

The percentage frequency distribution is:

Sales Vol (£m)	TALLY	No. of Co's
0 & < 10.0	##### 111	18
10.0 & < 20.0	##### 111	8
20.0 & < 30.0	1111	5
30.0 & < 40.0	111	3
40.0 & < 50.0	#### 1	6
		40

Sales Vol (£m)	No. of Co's	% of Co's
0 & < 10.0	18	45.0
10.0 & < 20.0	8	20.0
20.0 & < 30.0	5	12.5
30.0 & < 40.0	3	7.5
40.0 & < 50.0	6	15.0
	40	100

The cumulative percentage distribution is as follows:

Sales Vol (£m)	Cum No. of Companies	Cum % of Companies
< 0	0	0
< 10.0	18	45.0
< 20.0	26	65.0
< 30.0	31	77.5
< 40.0	34	85.0
< 50.0	40	100.0

# 6.4

