1. (a) F (b) T (c) T (d) F (e) T (f) F (g) F (h) T

2. Variable (e) Data (set) (d) Experiment (h) Parameter (f)
   Population (b) Sample (c) Statistic (a) Data (one) (g)

3. 126

4. (a) 47, 48, 49, 50, 55, 55, 60, 60, 60, 65, 75, 80

   (b) leaf unit=1

   Weights of 12 male students

4	789
5	055
6	0005
7	5
8	0

   (c) $\overline{x} \simeq 58.67$, $\widetilde{x} = 57.5$, mode=60, range=33, $P_{90} = 75$

   (d) The 5-number summary is:
   $L = 47$, $Q_1 = 49.5$, $Q_2 = \widetilde{x} = 57.5$, $Q_3 = 62.5$, and $H = 80$
   Draw your own box and whiskers display (it can be horizontal or vertical), using the 5-number summary.

5. (a) 0.67, (b) 0.05, (c) No, $P(A \cap B) \neq 0$

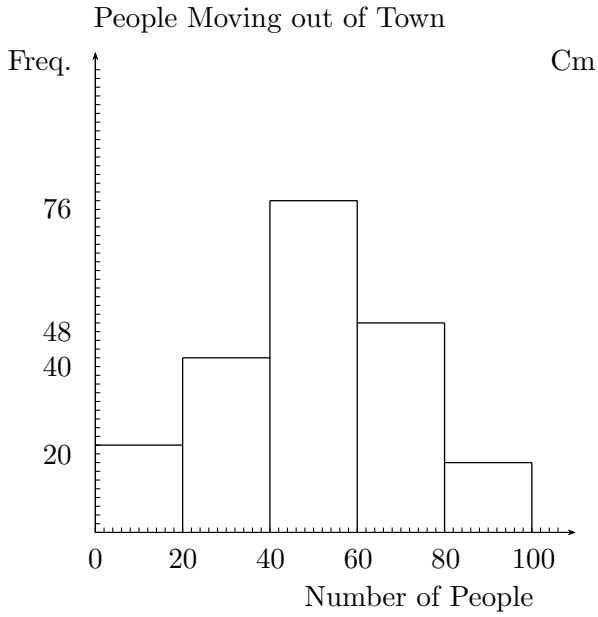
6. $\frac{15}{16}$

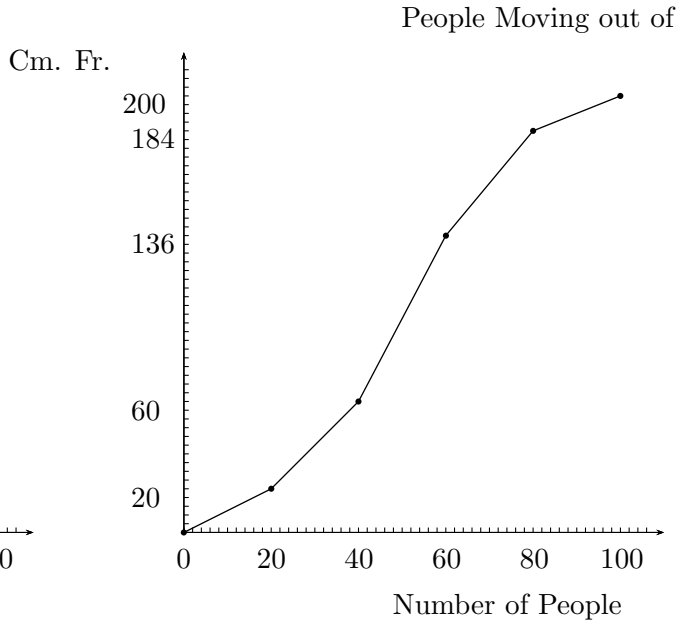
7. The completed table is:

# of people (Class limits)	# of towns f	Class Mark x	xf	$x^2 f$	Cumulative Frequency	Cumulative Rel. Frequency
0–20	20	10	200	2000	20	0.1
20–40	40	30	1200	36000	60	0.3
40–60	76	50	3800	190000	136	0.68
60–80	48	70	3360	235200	184	0.92
80–100	16	90	1440	129600	200	1

   (a) $\overline{x} = 50$, $s \simeq 21.59$

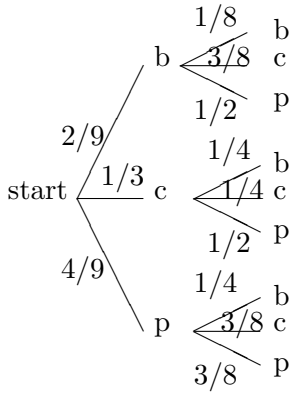
(b) The histogram and ogive are as follows:





8. (a) $\dfrac{130}{400} = \dfrac{13}{40}$
   (b) $\dfrac{90}{190} = \dfrac{9}{19}$
   (c) $\dfrac{60}{80} = \dfrac{3}{4}$

9. $P(B) = \dfrac{5}{12}$, $P(C) = \dfrac{1}{12}$ and $P(D|B) = \dfrac{8}{15}$ (Using the following tree diagram)



10. (a) 99.7%, (b) Using Chebyshev's Theorem with $k = 3$, we get $1 - \dfrac{1}{k^2} = 0.89$ (Approximately 89% of the data).

11. (a) 0.27
    (b) 0.85
    (c) 0

(d)

x	$p(x)$	$xp(x)$	$x^2p(x)$
2	0.05	0.1	0.2
3	0.22	0.66	1.98
4	0.4	1.6	6.4
5	0.23	1.15	5.75
6	0.1	0.6	3.6
$\sum$		4.11	17.93

$\mu = 4.11$ and $\sigma = 1.02$

12. (a) 0.207
    (b) 0.447
    (c) 0.996

13. (a) $n = 210$
    (b) $\sigma = 6.83$

14. (a) 0.052
    (b) 0.082
    (c) 0.918

15. (a) 0.4744
    (b) 0.1
    (c) 0.7734
    (d) -1.34
    (e) -1.76
    (f) -0.81

16. 0.9672

17. (a) 0.33, (b) 0.0038

18. $n = 139$

19. (a) $\overline{x} = 144$, (b) $(133.41, 154.59)$

20. (a) $p' = 0.7$, (b) $(0.549, 0.851)$