

20. (a)	No. on die A (x)	1	2	3	4	5	6
	Frequency (f)	3	5	5	4	2	1
	fx	3	10	15	16	10	6
	fx ²	3	20	45	64	50	36
	No. on die B (y)	1	2	3	4	5	6
	Frequency (f)	5	6	7	6	2	4
	fy	5	12	21	24	10	24
	fy ²	5	24	63	96	50	144

- (b) (i) Mean = 3
Standard deviation = 1.38
(ii) Mean = 3.2
Standard deviation = 1.58
(c) (i) Mean = 3.12
(ii) Standard deviation = 1.51

Challenging Practice

21. (a) 76.1 (b) 17.0°F
(c) (i) $x = \frac{5}{9}(y - 32)$
(ii) 12.5°C
(d) Mean = 22.1°C
Standard deviation = 9.45°C
22. (a) Mean = 72
Standard deviation = 7.52
(b) 9; 11; 5
(c) Mean = 73.4
Standard deviation = 7.31
(d) Figures in (c) to be used.
23. (a) Mean = 4%
Standard deviation = 0%
(b) Mean = 4%
Standard deviation = 3.89%
(c) (i) Scheme A (ii) Scheme B
(d) (i) 7% (ii) 1.12%
24. (b) (i) 0.785 min (ii) 1.05 min
(c) Thomson branch
(d) The waiting time is even out because customers will not be stuck at any one counter if the customer in front of him takes a longer time to transact.
(e) Thomson branch. Lower variation in waiting time.
25. (a) 11.8 (b) 20.9

Enrichment

26. Mean = 20
Standard deviation = 11.3
27. (a) $t + 2$ (b) 4
28. (a) 27 (b) 7.71

29. (a) (i) Company B (ii) Company A
(b) Company A: Mean = \$2700
Standard deviation = \$1190
Company B: Mean = \$3550
Standard deviation = \$1090

Chapter 2 Probability Laws

Basic Practice

1. (a) $\frac{1}{3}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) 0
2. (a) $S = \{1, 2, 3, 4, 5, 6\}$
(b) (i) $\frac{1}{2}$ (ii) $\frac{1}{2}$ (iii) $\frac{5}{6}$
(iv) $\frac{1}{6}$ (v) $\frac{1}{3}$
3. (a) $\frac{2}{5}$ (b) $\frac{6}{25}$ (c) $\frac{1}{5}$
(d) $\frac{2}{25}$ (e) $\frac{3}{25}$
4. (b) (i) $\frac{1}{8}$ (ii) $\frac{1}{4}$ (iii) $\frac{3}{4}$
5. (b) (i) $\frac{1}{6}$ (ii) $\frac{5}{12}$ (iii) $\frac{7}{12}$
(iv) $\frac{1}{12}$
6. (b) (i) $\frac{1}{9}$ (ii) $\frac{2}{9}$ (iii) $\frac{1}{3}$
(iv) $\frac{2}{3}$ (v) $\frac{4}{9}$
7. (b) (i) $\frac{1}{25}$ (ii) $\frac{16}{25}$ (iii) $\frac{4}{25}$
(iv) $\frac{8}{25}$ (v) $\frac{9}{25}$ (vi) $\frac{24}{25}$
8. (b) (i) $\frac{7}{15}$ (ii) $\frac{8}{15}$ (iii) $\frac{2}{5}$
(iv) $\frac{3}{5}$
9. (a) $\frac{1}{40}$ (b) $\frac{3}{10}$ (c) $\frac{9}{40}$
10. (a) $\frac{121}{400}$ (b) $\frac{3}{8}$ (c) $\frac{3}{16}$
(d) $\frac{1}{4}$ (e) $\frac{27}{80}$
11. (a) $\frac{1}{2197}$ (b) $\frac{8}{27}$ (c) $\frac{1}{27}$
(d) $\frac{1}{3}$ (e) $\frac{6}{2197}$
12. (a) $\frac{1}{32}$ (b) $\frac{3}{32}$ (c) $\frac{1}{32}$
(d) $\frac{7}{32}$

Further Practice

11. (a) $\frac{1}{2197}$ (b) $\frac{8}{27}$ (c) $\frac{1}{27}$
(d) $\frac{1}{3}$ (e) $\frac{6}{2197}$
12. (a) $\frac{1}{32}$ (b) $\frac{3}{32}$ (c) $\frac{1}{32}$
(d) $\frac{7}{32}$