

Probability Solutions

Section 1 - Lists

1. i. 18
ii. 6
iii. 3
2. 36
3. 24
4. 27
5. i. 36
ii. 12

Section 2 - Introduction to Probability

6. i. (a) Red, blue
(b) Red, blue, yellow, green
(c) Red, blue
ii. (a) $\frac{1}{2}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
7. i. $\frac{1}{4}$
ii. $\frac{1}{2}$
iii. $\frac{1}{4}$;
iv. $\frac{3}{4}$
8. i. $\frac{1}{6}$
ii. $\frac{1}{3}$
iii. $\frac{1}{2}$
iv. $\frac{1}{2}$
v. $\frac{1}{3}$
vi. $\frac{1}{2}$
9. i. $\frac{1}{11}$

- ii. $\frac{2}{11}$
 - iii. $\frac{2}{11}$
 - iv. $\frac{4}{11}$
 - v. $\frac{4}{11}$
- 10.
- i. $\frac{1}{13}$
 - ii. $\frac{1}{13}$
 - iii. $\frac{3}{13}$
 - iv. 1
 - v. 0
 - vi. $\frac{2}{13}$
- 11.
- i. $\frac{1}{4}$
 - ii. $\frac{1}{2}$
 - iii. $\frac{1}{2}$
 - iv. $\frac{1}{13}$
 - v. $\frac{3}{13}$
 - vi. $\frac{2}{13}$
- 12.
- i. $\frac{1}{7}$
 - ii. $\frac{2}{7}$
 - iii. $\frac{1}{6}$
- 13.
- i. $\frac{5}{12}$
 - ii. $\frac{1}{6}$
 - iii. $\frac{1}{12}$
 - iv. $\frac{1}{12}$
 - v. $\frac{5}{12}$
 - vi. $\frac{7}{12}$; Every disk is either even or odd, i.e. every outcome covered
- 14.
- i. $\frac{3}{10}$
 - ii. $\frac{7}{20}$
 - iii. $\frac{13}{20}$
 - iv. $\frac{7}{20}$
- 15.
- i. $\frac{1}{100}$
 - ii. $\frac{1}{10}$
 - iii. $\frac{1}{20}$
 - iv. $\frac{21}{25}$
 - v. 30

- vi. 20
- vii. 25
- viii. 100

Section 3 - Sample Spaces

- 16.
 - i. $\frac{1}{4}$
 - ii. $\frac{1}{4}$
 - iii. $\frac{1}{2}$
- 17.
 - i. $\frac{1}{18}$
 - ii. $\frac{1}{9}$
 - iii. $\frac{1}{6}$
 - iv. $\frac{1}{3}$
- 18.
 - i. $\frac{1}{16}$
 - ii. 1
 - iii. $\frac{3}{8}$
 - iv. $\frac{1}{4}$
 - v. $\frac{7}{16}$
 - vi. $\frac{9}{16}$
- 19.
 - i. $\frac{1}{9}$
 - ii. $\frac{1}{12}$
 - iii. $\frac{1}{12}$
 - iv. $\frac{5}{36}$

Section 4: Venn Diagrams

- 20.
 - i. $\frac{13}{41}$
 - ii. $\frac{6}{41}$
 - iii. $\frac{13}{41}$
 - iv. $\frac{26}{41}$
 - v. $\frac{15}{41}$
- 21.
 - i. 30
 - ii. 7
 - iii. $\frac{1}{10}$
 - iv. $\frac{11}{30}$
 - v. $\frac{2}{15}$
 - vi. $\frac{8}{15}$
- 22.
 - i. 12

- ii. $\frac{3}{5}$
 - iii. $\frac{1}{10}$
 - iv. $\frac{21}{25}$
 - v. $\frac{37}{50}$
23. i. 100
- ii. $\frac{7}{25}$
 - iii. $\frac{9}{100}$
 - iv. $\frac{1}{25}$
 - v. $\frac{9}{50}$
 - vi. $\frac{7}{50}$
24. i. $\frac{12}{25}$
- ii. $\frac{11}{100}$
 - iii. $\frac{29}{50}$
 - iv. $\frac{21}{100}$
 - v. $\frac{7}{100}$
25. i. .
- ii. $\frac{1}{7}$
 - iii. $\frac{9}{35}$
 - iv. $\frac{5}{7}$
 - v. $\frac{2}{5}$

Section 5: Tree Diagrams

26. i. $\frac{13}{18}$
- ii. $\frac{5}{36}$
27. i. .
- ii. (a) $\frac{2}{9}$
 - (b) $\frac{4}{9}$
 - (c) $\frac{5}{9}$
28. i. .
- ii. $\frac{12}{25}$
29. i. .
- ii. $\frac{12}{25}$
30. i. .
- ii. (a) $\frac{1}{36}$
 - (b) $\frac{5}{18}$