

Student Text *UNIT 20* *Probability of Two or More Events*

Answers

20.1 Outcome of Two Events

2. VC, VS, MC, MS, RC, RS
3. GG, RG, GR, RR
4. (a) Nathan wins sit ups and Ben wins press ups
 (b) BJ, BN, BB, JB, JN, JJ, NB, NJ, NN (c) BJ, BB, JB, JJ
 (d) BJ, BN, BT, BB, JB, JN, JT, JJ, NB, NJ, NT, NN, TB, TN, TJ, TT
5. BS, BT, BD, BB, ST, SD, SS, TD, TT, DD
6. CD, CB, CC, DB, DD, BB
7.

	F	M
H	HF	HM
T	TF	TM
C	CF	CM
8. HHH ; HHT, HTH, THH ; HTT, THT, TTH ; TTT
9. (b) $\frac{4}{9}$

20.2 Probability of Two Events

1. (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{1}{2}$
2. (a) $\frac{1}{12}$ (b) $\frac{1}{4}$ (c) $\frac{1}{4}$ (d) $\frac{1}{3}$ (e) $\frac{1}{2}$
3. (a) (i) $\frac{1}{6}$ (ii) $\frac{1}{9}$ (iii) $\frac{1}{2}$ (iv) $\frac{5}{18}$ (v) $\frac{5}{18}$ (b) 7
4. (b) (i) $\frac{1}{9}$ (ii) $\frac{1}{3}$ (iii) $\frac{8}{9}$ (c) $\frac{1}{9}$
5. (a) $\frac{1}{4}$ (b) $\frac{1}{2}$
6. (a) $\frac{1}{8}$ (b) $\frac{5}{8}$ (c) 5
7. (a) 6 (b) $\frac{2}{3}$ (c) $\frac{1}{3}$
8. (a) $\frac{1}{4}$ (b) $\frac{1}{8}$ (c) $\frac{7}{8}$
9. (a) (i) 1, 2 ; 1, 3 ; 2, 2 ; 2, 3 ; 3, 2 ; 3, 3 (ii) $\frac{1}{3}$ (iii) $\frac{2}{3}$ (b) (i) 9 (ii) Because 5 is added to 1, 2 and 3 (iii) Because three more possible outcomes, 5 + 1, 5 + 2 and 5 + 3, so $p(5)$ is now $\frac{2}{9}$, not $\frac{2}{6}$.

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Answers

20.2

10. (a) $\frac{1}{5}$ (b) $\frac{2}{5}$ (c) AX , AY , AZ , BW , BX , BY , BZ , CW , CX , CY ,
CZ , DW , DX , DY , DZ , EW , EX , EY , EZ
11. (b) $\frac{1}{8}$
12. (b) $\frac{4}{9}$

20.3 Use of Tree Diagrams

1. (b) $0.6 \times 0.6 = 0.36$; $0.6 \times 0.4 = 0.24$; $0.4 \times 0.6 = 0.24$; $0.4 \times 0.4 = 0.16$
(c) 0.16 (d) 0.36 (e) 0.48
2. (a) $\frac{1}{6}$ (c) (i) $\frac{1}{36}$ (ii) $\frac{5}{18}$ (iii) $\frac{25}{36}$
3. (a) $\frac{1}{4}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$
4. (a) $\frac{81}{100}$ (b) $\frac{99}{100}$ (c) $\frac{1}{100}$
5. (a) $\frac{1}{4}$ (c) (i) $\frac{9}{16}$ (ii) $\frac{3}{8}$ (iii) $\frac{1}{16}$
6. (b) (i) 0.54 (ii) 0.36 (iii) 0.04
7. (a) (i) 0.2 (ii) 0.4 (b) (i) 0.48 (ii) 0.08
8. (a) (i) 0.2704 (ii) 0.2304 (iii) 0.4992 (b) (iii)
9. (a) 0.56 (b) 0.38 (c) 0.04 (d) 0.64
10. (a) $\frac{7}{18}$ (b) $\frac{1}{36}$ (c) $\frac{1}{4}$
11. (b) (i) $\frac{1}{4}$ (ii) $\frac{1}{2}$ (iii) $\frac{3}{8}$
12. (b) 0.52
13. (a) $\frac{7}{13}$ (b) $\frac{43}{91}$
14. (b) $\frac{3}{14}$
15. (a) 0.6 (b) 0.16
16. (a) $\frac{1}{216}$ (b) $\frac{5}{216}$ (c) $\frac{5}{72}$ (d) $\frac{2}{27}$