

Compound Events - Sample space answers

1. (a)

	H	T
H	HH	HT
T	TH	TT

(b) $P(2 \text{ heads}) = \frac{1}{4}$ (c) $P(2 \text{ tails}) = \frac{1}{4}$ (d) $P(1 \text{ head, 1 tail}) = \frac{1}{2}$

2. (a)

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

(b) (i) $P(7) = \frac{6}{36} = \frac{1}{6}$ (ii) $P(4) = \frac{3}{36} = \frac{1}{12}$

(iii) $P(11) = \frac{2}{36} = \frac{1}{18}$ (iv) $P(\text{Even}) = \frac{18}{36} = \frac{1}{2}$

(v) $P(\text{Prime}) = \frac{15}{36} = \frac{5}{12}$ (vi) $P(\text{greater than 9}) = \frac{6}{36} = \frac{1}{6}$

3. (a)

+	2	4	6	8
1	3	5	7	9
3	5	7	9	11
5	7	9	11	13
7	9	11	13	15

(b) 16 outcomes

(c) 4

4. (a)

	1	2	3	4	5	6
H	1H	2H	3H	4H	5H	6H
T	1T	2T	3T	4T	5T	6T

(b) $P(3H) = \frac{1}{12}$

(c) $P(5T) = \frac{1}{12}$

(d) $P(\text{even} + T) = \frac{3}{12} = \frac{1}{4}$

5. (a)

x	1	2	3	4
1	1	2	3	4
2	2	4	6	8
3	3	6	9	12
4	4	8	12	16

(b) $P(\text{greater than 9}) = \frac{3}{16}$ (c) $P(\text{less than 12}) = \frac{13}{16}$

(d) $P(8) = \frac{2}{16} = \frac{1}{8}$ (e) $P(\text{Square}) = \frac{6}{16} = \frac{3}{8}$

(f) $P(\text{odd}) = \frac{4}{16} = \frac{1}{4}$

6	+	2	3	3	5
	1	3	4	4	6
	2	4	5	5	7
	3	5	6	6	8
	4	6	7	7	9

(b) 6 is the most likely score

(c) $P(5) = \frac{3}{16}$

(d) $P(\text{less than } 5) = \frac{4}{16} = \frac{1}{4}$

7	+	1	2	3
	1	2	3	4
	2	3	4	5
	3	4	5	6
	4	5	6	7
	5	6	7	8

(b) $P(6) = \frac{3}{15} = \frac{1}{5}$

(c) $P(\text{odd}) = \frac{7}{15}$

(d) $P(\text{less than } 5) = \frac{6}{15} = \frac{2}{5}$