## Ex 1.3

**Q1**

(i) Impossible
(ii) very likely
(iii) Very Unlikely
(iv) Very Unlikely
(v) Even chance
(vi) certain
(vii) Unlikely

**Q2**

(i) 6
(ii) 4
(iii) 0
(iv) 2

**Q3**

(i) red $= \frac{3}{8} \times 16 = 6$

(ii) Blue $= \frac{1}{2} \times 16 = 8$

(iii) yellow $= \frac{1}{8} \times 16 = 2$

**Q4**

(i) $P(5) = \frac{1}{6}$
(ii) $P(1 \text{ or } 2) = \frac{2}{6} = \frac{1}{3}$
(iii) $P(4 \text{ or more}) = \frac{3}{6} = \frac{1}{2}$
(iv) $P(\text{odd}) = \frac{3}{6} = \frac{1}{2}$
(v) $P(\text{less than } 3) = \frac{2}{6} = \frac{1}{3}$
(vi) $P(\text{Prime}) = \frac{3}{6} = \frac{1}{2}$

**Q5**

(i) $P(\text{King}) = 4/52 = 1/13$

(ii) $P(\text{Diamond}) = 13/52 = 1/4$

(iii) $P(\text{Picture Card}) = 12/52 = 3/13$

(iv) $P(\text{Black Queen}) = 2/52 = 1/26$

(v) $P(\text{Even number}) = 20/52 = 5/13$

**Q6**

(i) $P(\text{odd}) = 9/17$

(ii) $P(\text{2 digit}) = 8/17$

(iii) $P(\text{mult of 3}) = 5/17$

(iv) $P(\text{perfect Sq}) = 4/17$

**Q7** ADDITION

(i) $P(T) = 1/8$

(ii) $P(I) = 2/8 = 1/4$

(iii) $P(T \text{ or } D) = 3/8$

(iv) $P(\text{vowel}) = 4/8 = 1/2$

**Q8** 15 Red 10 Black 5 Green Total = 30.

(i) $P(\text{red}) = 15/30 = 1/2$

(ii) $P(\text{Green}) = 5/30 = 1/6$

(iii) $P(\text{red or green}) = 20/30 = 2/3$

(iv) $P(\text{not red}) = 1 - 1/2 = 1/2$

**Q9**

(i) $P(10) = 3/36 = 1/12$

(ii) $P(\text{Both odd}) = 9/36 = 1/4$

(iii) $P(4 \text{ or less}) = 6/36 = 1/6$

(iv) $P(\text{odd and } >6) = 12/36 = 1/3$

Q10

| × | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 |
| 6 | 6 | 12 | 18 | 24 | 30 | 36 |

Multiplied.

(i) $P(9) = 1/36$

(ii) $P(4) = 3/36 = 1/12$

(iii) $P(12) = 4/36 = 1/9$.

Q11 6 counters, $P(\text{Green}) = 1/2 \Rightarrow$ 3 greens.

Now $P(\text{Green}) = 2/5$.

Q12 (i) $P(\text{Purple}) = 3/5$

(ii) 3

(iii) 3

Q13

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

Scores Added

(i) $P(6) = 1/12$

(ii) $P(10) = 2/12 = 1/6$

(iii) $P(\text{even}) = 6/12 = 1/2$

9 occurs most often and $P(9) = 3/12 = 1/4$.

Q14 (Using Probability Space pg 16 in Book)

(i) P(winning) = $8/36 = 2/9$

(ii) P(Losing) = $4/36 = 1/9$

Q15 3 coins Total Possible outcomes: $2 \times 2 \times 2 = 8$.

Sample space

| | |
|---|---|
| H H H | T T H |
| H T H | T H T |
| H H T | H T T |
| T H H | T T T |

(i) P(HHH) = $1/8$

(ii) P(HTH) = $1/8$

(iii) P(2 heads + 1 Tail) = $3/8$

Q16 (i) P(female) = $25/50 = 1/2$

(ii) P(No Glasses) = $16/50 = 8/25$

(iii) P(Male with Glasses) = $16/50 = 8/25$

Male chosen $\Rightarrow$ Total is 25. P(Glasses) = $16/25$

Q17

(i) P(Bus) = $\frac{60}{360} = 1/6$

(ii) $360 - 90 - 60 = 210°$

P(walk) = $\frac{210}{360} = 7/12$