

$$\#3. a) \frac{1}{2}$$

$$b) P(BBB) = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$$

$$c) P(\text{at least 1 boy}) = P(\text{one boy}) + P(\text{two boys}) + P(\text{3 boys})$$

or
use complementary event

$$P(\text{no boys}) = \frac{1}{8}$$

$$= 1 - P(\text{no boys})$$

$$= 1 - \frac{1}{8} = \frac{7}{8}$$

$$3.d) P(\text{more boys}) = \frac{4}{8} = \frac{1}{2}$$

$$4. a) P(6) = \frac{1}{6}$$

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

$$c) P(\text{at least one } 6) = P(6 \text{ first only}) \text{ or } P(6 \text{ second only}) \\ \text{or } P(\text{two } 6\text{'s})$$

OR

$$P(\text{at least one } 6)$$

$$= P(\text{no } 6\text{'s})$$

$$= \frac{5}{6} \cdot \frac{5}{6} = \frac{25}{36}$$

$$1 - \frac{25}{36} = \frac{11}{36}$$

$$= \frac{1}{6} \cdot \frac{5}{6} + \frac{5}{6} \cdot \frac{1}{6} + \frac{1}{6} \cdot \frac{1}{6}$$

$$= \frac{5}{36} + \frac{5}{36} + \frac{1}{36} = \frac{11}{36}$$

$$\begin{aligned}
 5. a) P(\text{sum of } 10) &= P(\text{two } 5\text{s}) \text{ or } P(4 \text{ and } 6) \\
 &= \frac{1}{6} \cdot \frac{1}{6} + P(4,6) \text{ or } P(6,4) \\
 &= \frac{1}{36} + \frac{1}{6} \cdot \frac{1}{6} + \frac{1}{6} \cdot \frac{1}{6} \\
 &= \frac{3}{36} = \frac{1}{12} \checkmark
 \end{aligned}$$

$$\begin{aligned}
 P(4 \text{ and } 6) \\
 &= \frac{2}{6} \cdot \frac{1}{6} \\
 &= \frac{2}{36}
 \end{aligned}$$

#6, 7, 10

$$b) P(\text{sum } 11 \text{ or } 12) = \frac{3 \text{ ways}}{36} = \frac{3}{36} = \frac{1}{12}$$

$$c) P(\text{product of } 12) = \frac{4}{36} = \frac{1}{9}$$

$$d) P(\text{doubles}) = \frac{6}{36} = \frac{1}{6}$$

$$e) P(\text{1st \# even and sum is } 7) = \frac{3}{36} = \frac{1}{12}$$