

$$5. P(\text{head and head}) = \frac{1}{2} \times \frac{1}{2}$$

$$= \frac{1}{4}$$

6.

	1	2	3	4	5	6
a) 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) $P(\text{Doubles}) = \frac{6}{36} = \frac{1}{6}$

c) $P(\text{Doubles or sum of 5}) = \frac{10}{36} = \frac{5}{18}$

d) $P(\text{sum less than 7}) = \frac{15}{36} = \frac{5}{12}$

7. a) $P(\text{two hearts}) = P(\text{hearts})$ and $P(\text{hearts})$

$$\frac{13}{52} \times \frac{12}{51}$$

$$\frac{156}{2652}$$

$$\frac{1}{17}$$

$$0.059$$

b) $P(\text{two 7's}) = P(7 \text{ and } 7)$

$$\frac{4}{52} \times \frac{3}{51}$$

$$\frac{12}{2652}$$

$$\frac{1}{221}$$

$$0.0045$$

$$\begin{aligned} \text{c) } P(7 \text{ and } 3) &= \frac{4}{52} \times \frac{4}{51} \\ &= \frac{16}{2652} \quad 0.006 \end{aligned}$$

8.

- a) Independent
- b) Dependent (not replaced)
- c) Independent
- d) Independent

9. 10 R
15 B
6 G
4 Y

a) $P(\text{red and blue}) = \frac{10}{35} \times \frac{15}{35}$
replacement
 $= \frac{150}{1225}$
 $= 0.122$

b) $P(2 \text{ yellow}) = P(\text{yellow and yellow})$
without replacement
 $\frac{4}{35} \times \frac{3}{34}$
 $= \frac{12}{1190}$
 $= 0.01$

$$\begin{array}{l} \text{without} \\ \text{replacement} \end{array} \quad \frac{15}{35} \times \frac{14}{34} \times \frac{13}{33}$$
$$= \frac{2730}{39270}$$
$$= 0.0695$$

$$\text{d) } P(2 \text{ Green and blue}) = P(\text{green and green and blue})$$
$$\begin{array}{l} \text{replacement} \end{array} \quad \frac{6}{35} \times \frac{6}{35} \times \frac{15}{35}$$
$$= \frac{540}{42875}$$
$$= 0.01259$$

$$\text{e) } P(\text{yellow or green}) = P(\text{yellow}) + P(\text{green})$$
$$\frac{4}{35} + \frac{6}{35}$$
$$\frac{10}{35} = 0.2857$$

10. $P(\text{red}) = \frac{1}{4}$

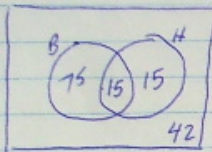
11.

$0.75 \times 0.69 = 0.5175$
 $0.75 \times 0.31 = 0.2325$
 $0.25 \times 0.20 = 0.05$
 $0.25 \times 0.80 = 0.2$

0.5175
 $+ 0.05$
 $\hline 0.5675$

$P(\text{forgot to set alarm} | \text{on time}) = \frac{0.05}{0.5675}$
 $= 0.088$

12. a)



$$b) P(\text{baseball } \bar{I}) = \frac{90}{147} \\ = 0.61$$

$$c) P(\text{Not a hoodie}) = \frac{117}{147} \\ = 0.7959 \\ = 0.80$$

$$d) P(\text{hoodie and baseball } \bar{I}) = \frac{15}{147} \\ = 0.10$$

$$e) P(\text{neither baseball nor hoodie}) = \frac{42}{147} \\ = 0.2857$$

13. Passing history 80% \leftrightarrow 20% Fail History
Failing Biology 40% \leftrightarrow 60% Pass Biology

$$P(\text{pass one, fail one}) = P(PH \text{ and } FB) \text{ or } P(FH \text{ and } PB)$$

$$= 0.80 \times 0.40 + 0.20 \times 0.60$$

$$0.32 + 0.12$$

$$0.44$$

$$44\%$$