

Advanced Math

Key

A bag contains 7 Red, 4 Blue, and 5 Green Marbles.
Find each probability assuming there is no replacement.

1) $P(G) = \frac{5}{16}$

2) $P(R) = \frac{7}{16}$

3) $P(B) = \frac{4}{16}$

4) $P(G, R) = \frac{5}{16} \cdot \frac{7}{15} = \frac{7}{48}$

5) $P(R, B) = \frac{7}{16} \cdot \frac{4}{15} = \frac{7}{60}$

6) $P(B, \bar{G}) = \frac{4}{16} \cdot \frac{10}{15} = \frac{1}{4} \cdot \frac{2}{3} = \frac{1}{6}$

7) $P(\bar{R}, \bar{R}) = \frac{9}{16} \cdot \frac{8}{15} = \frac{3}{2} \cdot \frac{1}{5} = \frac{3}{10}$

8) $P(Y, B) = 0$

9) $P(\bar{B}, \bar{G})$
 $P(R, \bar{G}) = \frac{7}{16} \cdot \frac{10}{15} = \frac{7}{24}$
 $P(G, \bar{G}) = \frac{5}{16} \cdot \frac{11}{15} = \frac{11}{48}$
 $\frac{25}{48}$

10) $P(\bar{Y}, R)$
 $P(R, R) = \frac{7}{16} \cdot \frac{6}{15} = \frac{7}{40}$
 $P(R, R) = \frac{7}{16} \cdot \frac{7}{15} = \frac{7}{40}$
 $\frac{7}{16}$

11) $P(B, G \text{ or } G, B) = 2 \left(\frac{4}{16} \cdot \frac{5}{15} \right) = \frac{1}{6}$

12) $P(\bar{B}, G \text{ or } G, \bar{B})$
 $P(R, G) = \frac{7}{48}$
 $P(G, G) = \frac{1}{12}$
 $P(G, \bar{B}) = \frac{5}{16} \cdot \frac{11}{15} = \frac{11}{48}$
 $\frac{11}{24}$

13) $P(R, G, B) = \frac{7}{16} \cdot \frac{5}{15} \cdot \frac{4}{14} = \frac{1}{24}$

14) $P(R, R, R) = \frac{7}{16} \cdot \frac{6}{16} \cdot \frac{5}{14} = \frac{1}{16}$

15) $P(B, B, B, B) = \frac{1}{1920}$
 $\frac{4}{16} \cdot \frac{3}{15} \cdot \frac{2}{14} \cdot \frac{1}{13}$

16) $P(B, B, B, B, B) = 0$