

HW Section 9.7 p. 682-685

⑥ $S = \{SSS, SSF, SFS, FSS, SFF, FFS, FSF, FFF\}$

⑩ $E = \{HHH, HHT, HTH, THH\}$ at least 2 heads
 $P(E) = \frac{4}{8} = \boxed{\frac{1}{2}}$

⑱ $E = \{(1,1), (1,2), (2,1), (4,6)\}$ sum 2, 3, or 12
 $P(E) = \frac{4}{36} = \boxed{\frac{1}{9}}$

⑳ $P(Y'Y') = \frac{{}^4C_2}{{}^6C_2} = \frac{6}{15} = \boxed{\frac{2}{5}}$

㉔ $P(\text{different colors}) = \frac{YG + RG + RY}{\text{All } {}^6C_2} = \frac{{}^2C_1({}^4C_1) + {}^3C_1({}^3C_1) + {}^3C_1({}^2C_1)}{15}$
 $= \frac{2 + 3 + 6}{15} = \boxed{\frac{11}{15}}$

㉔ a) $P(\text{all ten}) = \frac{{}^{15}C_{10}}{{}^{20}C_{10}} = \frac{21}{1292} \approx 0.016$

b) $P(\text{exactly 8}) = \frac{{}^{15}C_8({}^5C_2)}{{}^{20}C_{10}} = \frac{225}{646} \approx 0.348$

c) $P(\text{at least 9}) = \frac{{}^{15}C_9({}^5C_1)}{{}^{20}C_{10}} + \frac{{}^{15}C_{10}}{{}^{20}C_{10}} = \frac{49}{323} \approx 0.152$

$$50) a) P(\text{all 5 good}) = \frac{16 C_5}{20 C_5} = \frac{91}{323} \approx \boxed{0.282}$$

$$b) P(\text{exactly 4 good}) = \frac{(16 C_4)(4 C_1)}{20 C_5} = \frac{455}{969} \approx \boxed{0.471}$$

$$c) P(\text{at least 1 good}) = \boxed{1}$$

If you select 4 units from a shipment that has 3 defective, you will select a good unit. (No replacement)

$$51) a) P(\text{even, even}) = \frac{1}{2} \cdot \frac{1}{2} = \boxed{\frac{1}{4}}$$

$$b) P(EO) + P(OE) = \frac{1}{4} + \frac{1}{4} = \boxed{\frac{1}{2}}$$

$\frac{1}{2} \cdot \frac{1}{2} \quad \frac{1}{2} \cdot \frac{1}{2}$

$$c) P(N_1 < 10, N_2 < 10) = \frac{9}{30} \cdot \frac{9}{30} = \boxed{\frac{9}{100}}$$

$$d) P(N_1, N_1) = \frac{30}{30} \cdot \frac{1}{30} = \boxed{\frac{1}{30}}$$