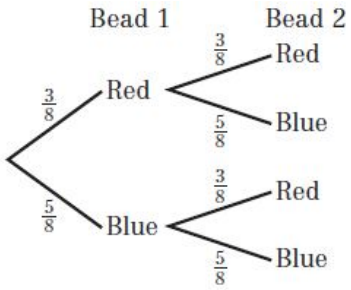
Probability 5D

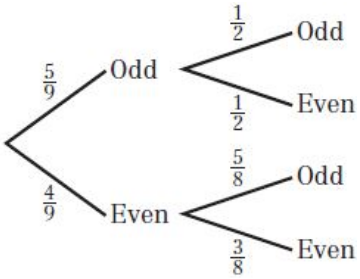
1 a



b $P(\text{both blue}) = \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$

c $P(\text{second blue}) = \frac{3}{8} \times \frac{5}{8} + \frac{5}{8} \times \frac{5}{8} = \frac{5}{8}$

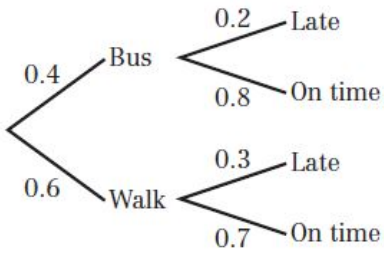
2 a



b $P(\text{both even}) = \frac{4}{9} \times \frac{3}{8} = \frac{12}{72} = \frac{1}{6}$

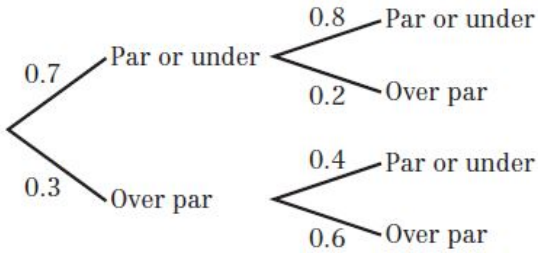
c $P(\text{different parity}) = P(\text{odd then even}) + P(\text{even then odd}) = \frac{5}{9} \times \frac{1}{2} + \frac{4}{9} \times \frac{5}{8} = \frac{40}{72} = \frac{5}{9}$

3 a



b P(late) = P(bus and late) + P(walk and late) = 0.4 × 0.2 + 0.6 × 0.3 = 0.26

4 a



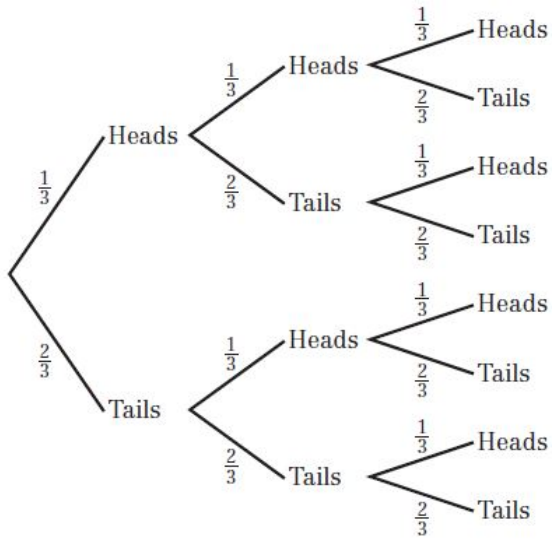
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4 b The events are not independent.

c P(par or under on exactly one hole) = P(par or under then over par) + P(over par then par or under)

$= 0.7 \times 0.2 + 0.3 \times 0.4 = 0.26$

5 a



b $P(HHH) = \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} = \frac{1}{27}$

c $P(\text{one H only}) = P(HTT) + P(THT) + P(TTH) = \frac{1}{3} \times \frac{2}{3} \times \frac{2}{3} + \frac{2}{3} \times \frac{1}{3} \times \frac{2}{3} + \frac{2}{3} \times \frac{2}{3} \times \frac{1}{3} = \frac{4+4+4}{27} = \frac{4}{9}$

d $P(\text{HHH or TTT}) = \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} + \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} = \frac{1+8}{27} = \frac{1}{3}$

So P(HHH or TTT in both trials) = $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

6 a $P(\text{both yellow}) = P(\text{first } Y) \times P(\text{second } Y) = \frac{6}{13} \times \frac{5}{12} = \frac{30}{156} = \frac{5}{26}$

b $P(\text{third } Y) = \frac{4}{11}$

c $P(\text{all different}) = P(BRY) + P(BYR) + P(RYB) + P(RBY) + P(YBR) + P(YRB)$

$= \frac{4}{13} \times \frac{3}{12} \times \frac{6}{11} + \frac{4}{13} \times \frac{6}{12} \times \frac{3}{11} + \frac{3}{13} \times \frac{6}{12} \times \frac{4}{11} + \frac{3}{13} \times \frac{4}{12} \times \frac{6}{11} + \frac{6}{13} \times \frac{4}{12} \times \frac{3}{11} + \frac{6}{13} \times \frac{3}{12} \times \frac{4}{11}$

$= 6 \times \left(\frac{4 \times 3 \times 6}{13 \times 12 \times 11} \right) = \frac{432}{1716} = \frac{36}{143}$

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