Warm Up Grade 8

May 20, 2019

A bag contains 7 orange marbles, 5 blue marbles and 3 green marbles and 2 purple

1) Tim removes 1 marble without looking record the colour, then return the marble to the bag and flips a coin.

a) What is the probability the he picks a 3 blue marbles ?

$$P(b,b,b) = \frac{5}{17} \times \frac{5}{17} \times \frac{5}{17} = \frac{125}{4913}$$

b) What is the probability to pick any color then the same color? (two of the same marbles)

$$P(\text{any, same}) = P\left(\frac{17}{17}\right) \times P\left(\frac{1}{17}\right) = \frac{17}{289} \div 17 \downarrow \frac{1}{17}$$

2)

a) What is the probability of picking 3 marbles and all are not blue?

$$P = (\text{Not B}, \text{Not B}, \text{Not B})$$

$$P = \frac{12}{17} \times \frac{12}{17} \times \frac{12}{17} = \frac{1728}{4913}$$

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1. Words suggesting Independent Events:
return, replace

2. $P(8) = \frac{1}{4}$

$P(\text{not } 8) = 1 - \frac{1}{4} = \frac{3}{4}$

Prob(8) and Prob(not 8) has to be 1.

3. $P(\text{blue}) = \frac{1}{2}$ $P(T) = \frac{1}{2}$

$P(\text{blue and } T) = \frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{4}$

b) $P(B \text{ or } G) = 1$ $P(H) = \frac{1}{2}$

$P(B \text{ or } G \text{ and } H) = 1 \times \frac{1}{2}$

$= \frac{1}{2}$

4. a) $P(\text{red}) = \frac{2}{3}$

$\text{Prob}(\text{red and red}) = P(\text{red}) \times P(\text{red})$

$= \frac{2}{3} \times \frac{2}{3}$

$= \frac{4}{9}$

b) $P(1^{st}\text{ red and } 2^{nd}\text{ Black})$

$= P(\text{red}) \times P(\text{black})$

$\frac{2}{3} \times \frac{1}{3}$

$= \frac{2}{9}$

c) $\text{Prob}(\text{both even}) = \text{Prob}(\text{even}) \times \text{Prob}(\text{even})$

$= \frac{2}{3} \times \frac{2}{3}$

$= \frac{4}{9}$

d) Prob(sum greater 8)

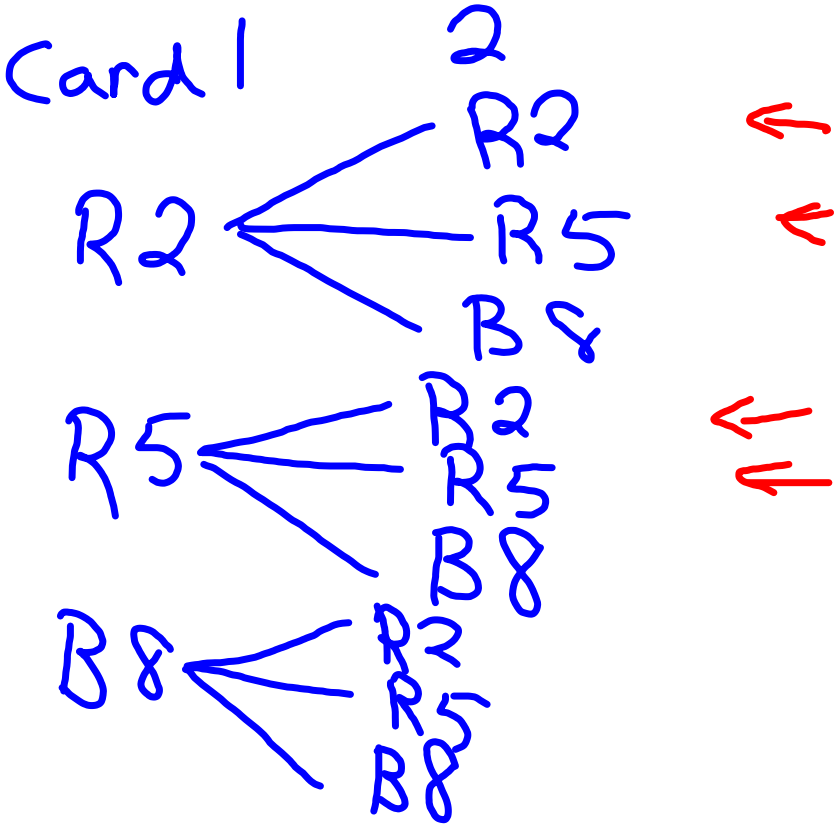
2, 8
5, 8
8, 8
5, 5

} 4 favorable outcomes

Possible outcomes

$3 \times 3 = 9$

$P(\text{Sum} > 8) = \frac{4}{9}$


Card 1
2
R2
R2
R5
B8
R5
R2
R5
B8
B8
R2
R5
B8

5.

a) $P(G \text{ and } 2) = P(G) \times P(2)$

$= \frac{1}{2} \times \frac{1}{5}$

$= \frac{1}{10}$

b) $P(\text{red and even}) = P(\text{red}) \times P(\text{even})$

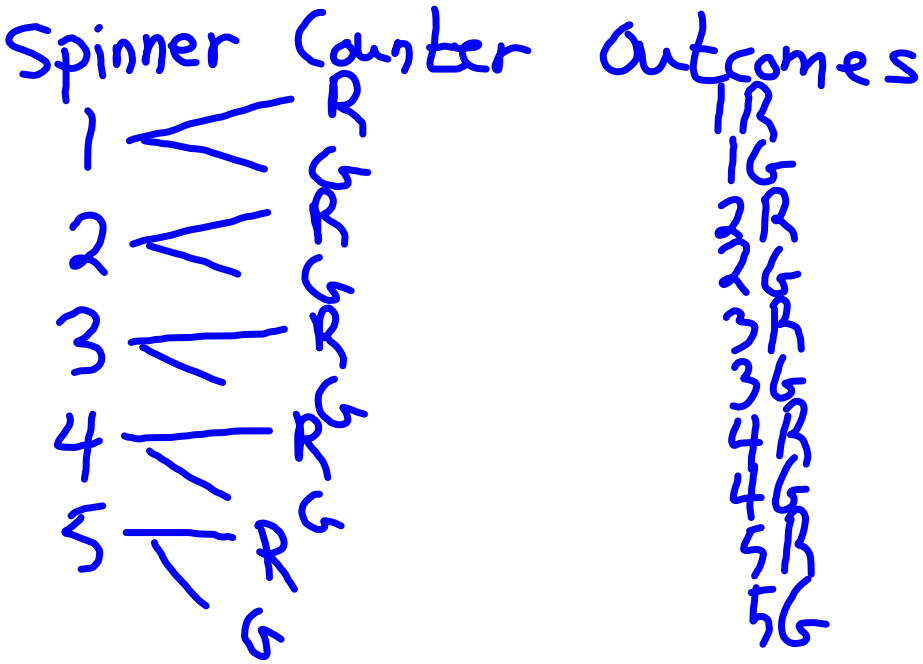
$= \frac{1}{2} \times \frac{2}{5}$

$= \frac{2}{10}$ or $\frac{1}{5}$

c) $P(\text{green and prime}) = P(\text{green}) \times P(\text{prime})$

$= \frac{1}{2} \times \frac{3}{5}$

$= \frac{3}{10}$



6

a) P(blue spotted, then solid red)

$= P(Bs) \times P(Sr)$

$= \frac{1}{10} \times \frac{3}{10}$

$= \frac{3}{100}$

b) Some Prob(red then spotted)

$= P(\text{red}) \times P(\text{spotted})$

$= \frac{5}{10} \times \frac{3}{10}$

$= \frac{15}{100}$ or $\frac{3}{20}$

c) Prob(striped, then solid blue)

$= P(\text{striped}) \times P(\text{blue solid})$

$= \frac{3}{10} \times \frac{1}{10}$

$= \frac{3}{100}$

d) Some P(blue or red sector, then spotted)

$P(\text{blue or red}) \times P(\text{spotted})$

$\frac{8}{10} \times \frac{3}{10}$

$\frac{24}{100}$ or $\frac{6}{25}$

7. Prob(6 and 6) = P(6) x P(6)

$= \frac{1}{6} \times \frac{1}{6}$

$= \frac{1}{36}$

b) P(6 then 4) = P(6) x P(4)

$= \frac{1}{6} \times \frac{1}{6}$

$= \frac{1}{36}$

c) P(not 4 then even) = P(not 4) x P(even)

$= \frac{5}{6} \times \frac{3}{6}$

$= \frac{15}{36}$ or $\frac{5}{12}$

d) Prob(even then odd)

= Prob(even) x P(odd)

$= \frac{3}{6} \times \frac{3}{6}$

$= \frac{9}{36}$ or $\frac{1}{4}$

or $\frac{1}{2} \times \frac{1}{2}$

$\frac{1}{4}$

e) P(greater than 3, then less than 4)

P(>3) x P(<4)

$\frac{3}{6} \times \frac{3}{6}$

$\frac{9}{36}$ or $\frac{1}{4}$

8 a) Prob(6 and spade) = P(6) x P(spade)

$= \frac{1}{6} \times \frac{1}{4}$

$= \frac{1}{24}$

ii) Prob(not 4 and ace) = P(not 4) x P(A)

$= \frac{5}{6} \times \frac{4}{52}$

$= \frac{5}{6} \times \frac{1}{13}$

$= \frac{5}{78}$

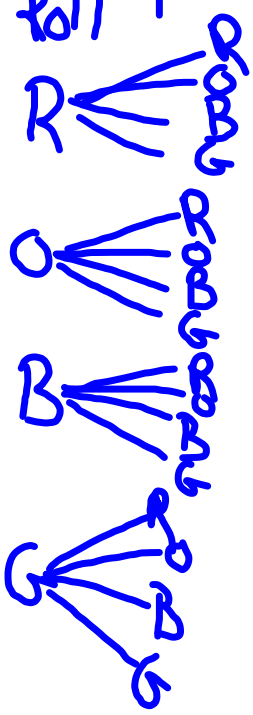
b)

c) Prob(AS and 5) = P(AS) x P(5)

$= \frac{1}{52} \times \frac{1}{6}$

$= \frac{1}{312}$

9. Roll 1 #12



4 ways to get the same colour out of 16 possibilities

$\frac{4}{16}$ or $\frac{1}{4}$

P(1st colour and 2nd colour the same)

= P(1st colour) x P(same as 1st)

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

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

$\frac{1}{4}$

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10. a) Prob(black) $= \frac{1}{5}$

b) Prob(Green and Green) $= P(G) \times P(G)$

$= \frac{1}{5} \times \frac{1}{5}$

$= \frac{1}{25}$

c) Assumption

→ replaced sock after first try

11. a) Prob(2 boys) $= P(b) \times P(b)$

$= \frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{4}$

b)

1st	2nd	
B	B	BB
	G	BG
G	B	GB
	G	GG

$P(2B) = \frac{1}{4}$

12. a) i) P(red then yellow) = P(r) x P(y)

$= \frac{6}{12} \times \frac{2}{12}$

$= \frac{12}{144}$ or $\frac{1}{12}$

ii) P(2 blue) = P(b) x P(b)

$= \frac{4}{12} \times \frac{4}{12}$

$= \frac{16}{144}$

$= \frac{1}{9}$

or $\frac{1}{3} \times \frac{1}{3}$

$\frac{1}{9}$

iii) P(not blue, then yellow) = P(not blue) x P(y)

$= \frac{8}{12} \times \frac{2}{12}$

$= \frac{2}{3} \times \frac{1}{6}$

$= \frac{2}{18}$ or $\frac{1}{9}$

b) If the marbles are not replaced the events are not independent, therefore you can not use the rule.

Class/Homework

Page 411 -413 #7, #9, #10, #11, #12

Page 420 #4, #5, #6,#7, ~~#8, #11, #14~~

Page 425 #3, #7,

Worksheets

May 22

Part A + B Test Tomorrow

8 Multiple Choice !!

~~/33~~ 28

Part B

1) 3 thing you can read off of graph or Not
2) ~~Which is misleading and why?~~
3) Probability using spinners
4) Probability of more than one event

4c)

$P(H \text{ and } H \text{ and } H) = P(H) \times P(H) \times P(H)$

$= \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$

$= \frac{1}{8}$