Warm Up Grade 8

1) What is the probability of spinning the spinner three times and getting red,green, blue?

$P(\underline{R} \text{ and } \underline{G} \text{ and } \underline{B})$

$= P(R) \times P(G) \times P(B)$

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

Reduce

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

$= \frac{1}{108}$

$= 0.0092$

$= 0.92\%$

2) What is the probability of spinning the spinner twice and not getting a green?

$P(\text{Not G and Not Green}) = P(\text{Not green}) \times P(\text{Not Green})$

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

Reduce

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

$= \frac{4}{9}$

$= 0.\overline{44}$

$= 44\%$

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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 socks 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)

$= \frac{6}{12} \times \frac{2}{12}$ or $\frac{1}{2} \times \frac{1}{6}$

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

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

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

$= \frac{16}{144}$ or $\frac{1}{3} \times \frac{1}{3}$ $\frac{1}{9}$

$= \frac{1}{9}$

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, there fore you can not use the rule.

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pg.420 (# 1 to #3)

1. 4 events Prob (A and B and C and D) = P(A) x P(B) x P(C) X P(D)

5 Events P(A and B and C and D and E) = P(A) x P(B) x P(C) x P(D) x P(E)

2. All the possible outcomes for the weather are exactly one of these two events:
it rains in all 3 cities or it doesn't rain in all 3 cities.
So subtract the answer from 1 (or 100%)

1 - 0.0975= 0.9025 or 90.25%

3. Since the cities are in different provinces, they are far enough apart that it is unlikely that the weather in one city on a particular day would affect the weather in a different city on the same day.

4\. a) $Prob(3H) = P(H) \times P(H) \times P(H)$

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

$= \frac{1}{8} = 0.125 = 12.5\%$

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b) $P(3T) = P(T) \times P(T) \times P(T)$

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

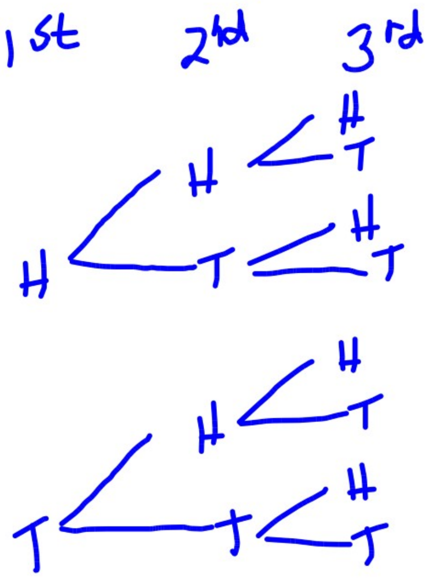
$= \frac{1}{8} = 0.125 \Rightarrow 12.5\%$

c) $P(T, H, T) = P(T) \times P(H) \times P(T)$

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

$= \frac{1}{8}$

Tree Diagram



Outcomes
HHH
HHT
HTH
HTT
THH
THT
TTH
TTT

5.

☆ a) $P(R2, B3, G4) = P(R2) \times P(B3) \times P(G4)$

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

$= \frac{1}{216}$

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☆ b) $P(R4, \text{Beven}, G<3) = P(R4) \times P(\text{Beven}) \times P(G<3)$

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

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

$= \frac{1}{36}$

$\frac{6}{216} \begin{matrix} \div 6 \\ \div 6 \end{matrix}$

6. a) $P(R, B, Y) = P(R) \times P(B) \times P(Y)$

$= \frac{1}{4} \times \frac{1}{2} \times \frac{1}{4}$

$= \frac{1}{32}$

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b) $P(B, B, \text{not } R) = P(B) \times P(B) \times P(\text{not } R)$

$= \frac{1}{2} \times \frac{1}{2} \times \frac{3}{4}$

$= \frac{3}{16}$

c) $P(B, B, B) = P(B) \times P(B) \times P(B)$

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

$= \frac{1}{8}$

7. $P(1^{st}, 2^{nd}, 3^{rd}, 4^{th}) = P(1^{st}) \times P(2^{nd}) \times P(3^{rd}) \times P(4^{th})$

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

$= \frac{1}{10\,000}$

$= 0.001$

$= 0.1\%$

___ ___ ___ ___

only 1 correct # | only 1 | only 1 | only 1 correct

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

10 # in this set

P(1st correct And 2nd correct And 3rd correct And 4th correct)

= P(1st correct) x P(2nd correct) x P(3rd correct) x P(4th correct)

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

$= \frac{1}{10\,000}$

$= 0.0001$

$= 0.001\,\%$

$0 \rightarrow 39$

$\underbrace{\qquad\qquad}_{40 \text{ \#s}}$

$P(1^{st}) \times P(2^{nd}) \times P(3^{rd})$

$\frac{1}{40} \times \frac{1}{40} \times \frac{1}{40}$

$\frac{1}{64\,000}$

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3 & 7

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3a) The bar graph tells you **the number** of awards each dog has won.

3b) Most situations you are more interested in the number of awards a dog wins, not their percentage, so that is why I like the.bar graph better.

3c) No you could not use a line graph to represent the awards different dogs won since it is not a change in wards that one certain dog won.

3d) Yes you can use a pictograph to display the amount of award a dog won as long as you choose an appropriate symbol and key.

7) Wrong pizza Orders Graph 2 is misleading since it does not start the horizontal axis at zero. It makes you that pizza party get 12 times more wrong pizza orders than pizza place.

Given a bag of marbles with 4 red, 7 blue , 2 green, 1 white. You pick a marble at random and then return it and pick again, and so on....

a) What is the probability of getting 2 blue marbles?

P(Blue And Blue) = P(Blue) × P(Blue)

$\frac{7}{14} \times \frac{7}{14}$

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

0.25 = 25%

b) What is the probability of picking 3 and all three are green?

P(3 Green) = P(G) × P(G) × P(G)

$\frac{2}{14} \times \frac{2}{14} \times \frac{2}{14}$

$\frac{1}{7} \times \frac{1}{7} \times \frac{1}{7} = \frac{1}{343}$ = 0.002

0.2%

c) What is the probability of picking 2 and both not be red?

P(Not Red And Not Red) = P(Not Red) × P(Not Red)

$\frac{10}{14} \times \frac{10}{14}$

$\frac{5}{7} \times \frac{5}{7}$

$\frac{25}{49}$

= 0.51

51%

Class/Homework

Pg 530-531 Answers

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Answers pg 531-532

Page 426-427 , #3, #7, # 5 , #10, #12, #15,

yesterday

(All solutions will be posted in this lesson in case you want to check before the test tomorrow)

Test in 2 days

Part A

8 Multiple Choice /35

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

9 a) P(♡ and ♡ and ♡) = P(♡) × P(♡) × P(♡

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

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

$$\frac{1}{64}$$

b) P(♠ ♠, Red) = P(♠) × P(♠) × P(Red

$$= \frac{13}{52} \times \frac{13}{52} \times \frac{26}{52}$$

$$= \frac{1}{4} \times \frac{1}{4} \times \frac{1}{2}$$

$$= \frac{1}{32}$$

c) P(NOT ♡) × P(Black) × P(A)

$$= \frac{39}{52} \times \frac{26}{52} \times \frac{4}{52}$$

$$\frac{3}{4} \times \frac{1}{2} \times \frac{1}{13}$$

10)

$P(\_\ \_\ \_\ \_\ \_) = P\binom{1st}{right} \times P\binom{2nd}{right} \times P\binom{3rd}{right} \times P\binom{4th}{right} \times P\binom{5th}{right}$

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

$= \frac{1}{1024}$

$= 0.0009766$

$= 0.09766\ \%$

b) $P\binom{1st}{rig} \times P\binom{2nd}{right} \times P\binom{3rd}{right} \times P\binom{Not}{right} \times P\binom{Not}{right}$

$\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{3}{4} \times \frac{3}{4}$

$\frac{9}{1024}$

$= 0.00879$

$\approx 0.879\ \%$

c) $P\binom{Not}{Rig} \times P\binom{Not}{Right} \times P\binom{Not}{right} \times P\binom{Not}{right} \times P\binom{Not}{right}$

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

$\frac{243}{1024}$

$= 0.237$

$= 23.7\ \%$

Deck of Cards ⇒ 52 cards

4 Suits ♣ ♠ ♦ ♥
13 13 13 13

Face cards K , Q , Jack
2 Red K ... ...
2 Black K ... ...

4 of each # A to 9

8a) $P(W, W, W) = P(W) \times P(W) \times P(W)$

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

$= \frac{1}{1000}$

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b) $P(W) = \frac{1}{10}$

c) $P(\text{Not}W, NW, NW, NW)$

$= P(NW) \times P(NW) \times P(NW) \times P(NW)$

$= \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10}$

$= \frac{6561}{10000}$

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pg 421 Nadine Josh Shirley

9. $P(3H) = P(H) \times P(H) \times P(H)$

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

$= \frac{1}{64}$

b) Prob(Spade, spade, Red)

$= P(S) \times P(S) \times P(R)$

$= \frac{1}{4} \times \frac{1}{4} \times \frac{1}{2}$

$= \frac{1}{32}$

c) P(not H, black, ace)

$P(\text{not } H) \times P(\text{black}) \times P(A)$

$\frac{3}{4} \times \frac{1}{2} \times \frac{4}{52}$

$= \frac{3}{4} \times \frac{1}{2} \times \frac{1}{13}$

$= \frac{3}{104}$

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10 a) P(All 5 correct)

$= P(C) \times P(C) \times P(C) \times P(C) \times P(C)$

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

$= \frac{1}{1024}$

b) P(only first 3 correct)

$P(C) \times P(C) \times P(C) \times P(W) \times P(W)$

$= \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{3}{4} \times \frac{3}{4}$

$= \frac{9}{1024}$

c)

P(all 5 wrong) $= P(W) \times P(W) \times P(W) \times P(W) \times P(W)$

$= \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$

$= \frac{243}{1024}$

11. P(3 correct letters) Page 421 # 9 , #10, #11, #12, #13

= P(1st correct) x P(2nd correct) x P(3rd cor)

$= \frac{1}{26} \times \frac{1}{26} \times \frac{1}{26}$

$= \frac{1}{17576}$

12a) P(3 Beatles) = P(B) x P(B) x P(B)

$= \frac{6}{16} \times \frac{6}{16} \times \frac{6}{16}$

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

$= \frac{27}{512}$

b) P(RS, RS, B, B)

= P(RS) x P(RS) x P(B) x P(B)

$= \frac{4}{16} \times \frac{4}{16} \times \frac{6}{16} \times \frac{6}{16}$

$= \frac{1}{4} \times \frac{1}{4} \times \frac{3}{8} \times \frac{3}{8}$

$= \frac{9}{1024}$

c) P(D, D, B or RS)

= P(D) x P(D) x P(B or RS)

$= \frac{2}{16} \times \frac{2}{16} \times \frac{10}{16}$

$= \frac{1}{8} \times \frac{1}{8} \times \frac{5}{8}$

$= \frac{5}{512}$

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13a) $P(5W) = P(W) \times P(W) \times P(W) \times P(W) \times P(W$

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

$= \frac{1}{7776}$

$= 0.0001286$

or 0.01286%

b) The events are independent, so if you draw 5 white marbles the probability of the next marble being white is still $\frac{1}{6}$.

c) This is not the same as asking what the probability is of getting 6 white in a row.....

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5) a) Stacy used the same number of symbols next to each category and use the same for her symbol.

5b) From her pictograph she drew the picture beside the carrots larger to draw more attention to that category but in reality candy has the most symbols which indicates it is the most popular.

5c) She made her symbols different sizes whrn she should keep them all the same size. She made sure the symbols beside the carrots were the largest trying to convince people that carrots are more popular.

10) P(Red Shirt, Brown Pants) = P(Red Shirt) x P(Brown Pants)

$= \frac{1}{4} \times \frac{2}{3}$

$= \frac{2}{12}$

$= \frac{1}{6}$

= 0.16666 = 16.6

12) a) p(green) = 1/3 = 0.33= 33%

12b) P(green, green, green) = P(green) x P(Green) x P(Green)

= 1/3 x 1/3 x 1/3

= 1 /27

= 0.037

= 3.7%

12c) p(not green, not green, not green) = P(NG) x P(NG) x P(NG)

= 2/3 x 2/3

= 8/27

= 0.29

= 29%

15) a) P(M, M, M) = P(M) x P(M) x P(M)

= (1/4) x (1/4) x (1/4)

= 1/64

= 0.016

= 1.6%

15) b) P(M, A, T) = P(M) x P(A) x P(T)

= (1/4) x (1/4) x (1/4)

= 1/64

= 0.016

= 1.6%

15) c) P(A, A, H) = P(A) x P(A) x P(H)

= (1/4) x (1/4) x (1/4)

= 1/64

= 0.016

= 1.6%

15) d) P(NotA, NOTCon,A) = P(NotA) x P(NotCon) x P(A

= (3/4) x (1/4) x (1/4)

= 3/64

= 0.046

= 4.6%