Unit 6
Probability
HW Answers

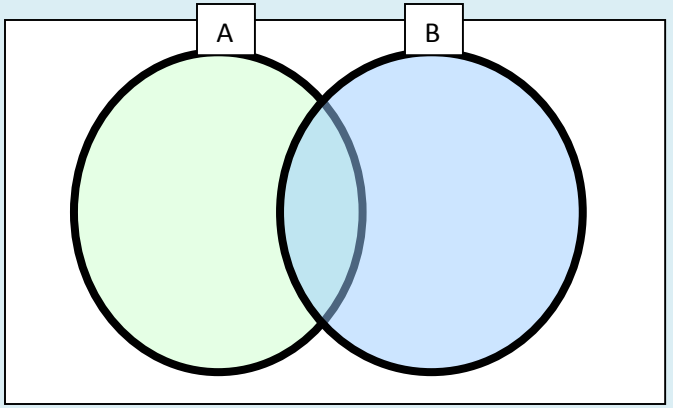
Packet p. 1 and 2 Answers

1. 210
2. 210
3. $3 \cdot 5 = 15$
4. $3 \cdot 7 = 21$
5. $4^8 = 65536$
6. ${}_{20}P_3 = 6840$
7. ${}_{14}C_6 = 3003$
8. ${}_{8}P_3 = 336$
9. ${}_{9}P_5 = 15120$
10. ${}_{17}C_8 = 24310$
11. ${}_{100}C_{18} = 3.066 \times 10^{19}$
12. ${}_{5}C_3 = 10$
13. ${}_{2}C_1 \cdot {}_{5}C_2 \cdot {}_{4}C_2 = 120$
14. ${}_{30}P_3 = 24360$
15. ${}_{12}P_5 - {}_{15}C_6 = 90035$

Packet p.3 Answers

Part I: Organize the Data

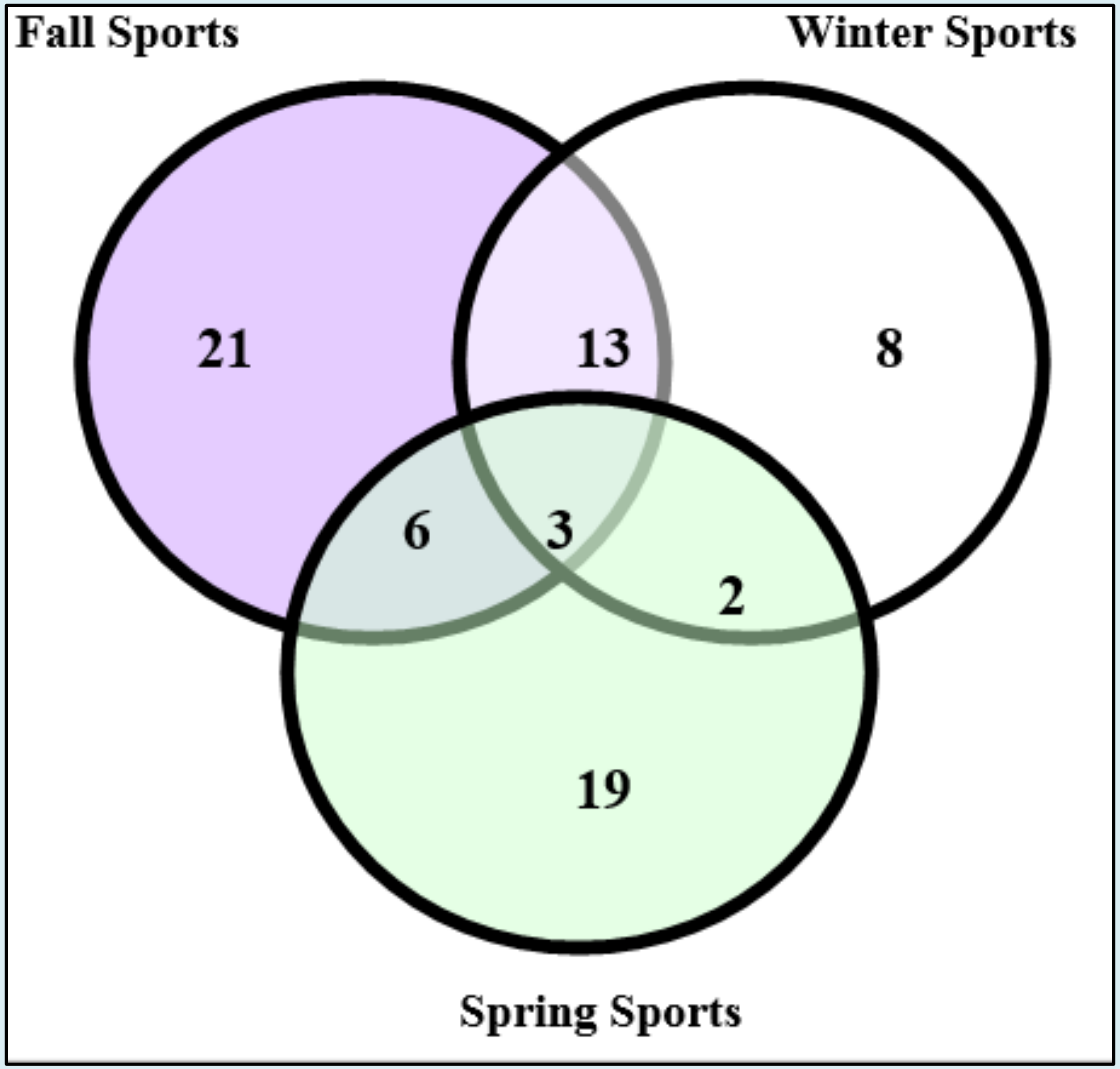
1. $A \cup B = \{1,2,3,4,6,8,12,16,24,32,64\}$
2. $A \cap B = \{1,2,4,8\}$
3. $A^C = \{0,3,6,7,9,12,24,30,55\}$
4. $B^C = \{0,7,9,16,30,32,55,64\}$



Packet p.3 Answers

Part II: Answer Questions about the diagram p. 3

1. 3
2. 9
3. 16
4. 5
5. 48
6. 24



Packet Answers p. 4

7. a.) 4/13

   b.) 1/52

8. BB, BR, BW, RR, RB, RW, WB, WR, WW

9. a.) ¼
   b.) 5/16
   c.) 11/16
   d.) 0
   e.) 9/16
   f.) 1:3
   g.) 3:1

10. Red, Blue, Yellow, Green, Purple, Orange

a.) 6x6 = 36 items

RR, RB, RY, RG, RP, RO,
BR, BB, BY, BG, BP, BO,
YR, YB, YY, YG, YP, YO,
GR, GB, GY, GG, GP, GO,
PR, PB, PY, PG, PP, PO,
OR, OB, OY, OG, OP, OO

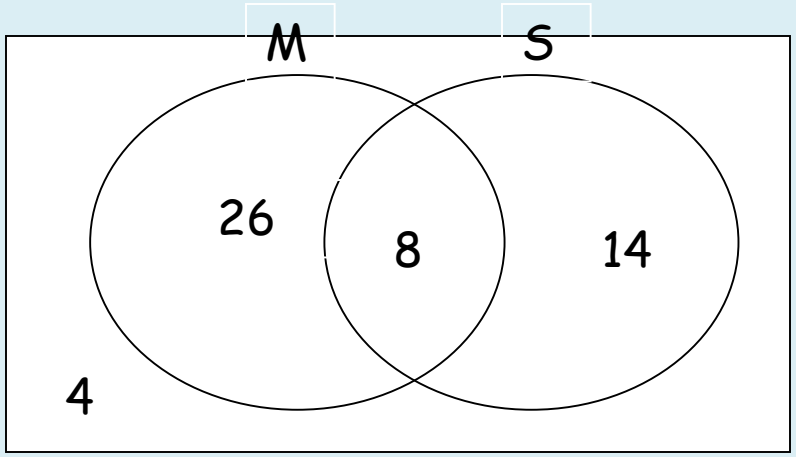
b.) 1/6

c.) 1/2

d.) 1/36

Packet Answers p. 5

11) a)



b) $M \cup S = \{48\}$

c) $M \cap S = \{ 8 \}$

d) Students taking both Math and Science

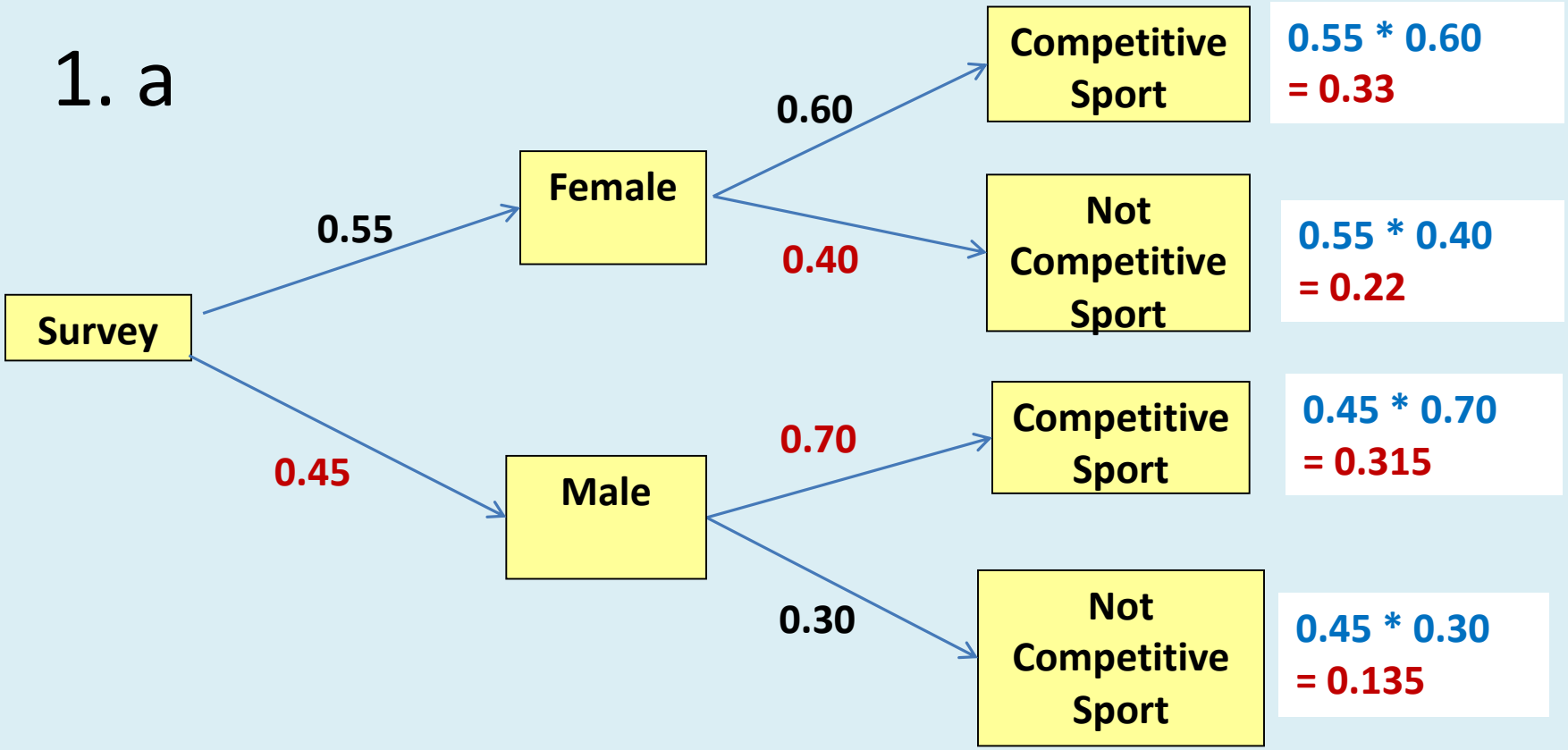
e) $M^C = \{18\}$

f) $S^C = \{30\}$

g) Students not taking Math or Science

Packet p.6 Answers

1. a



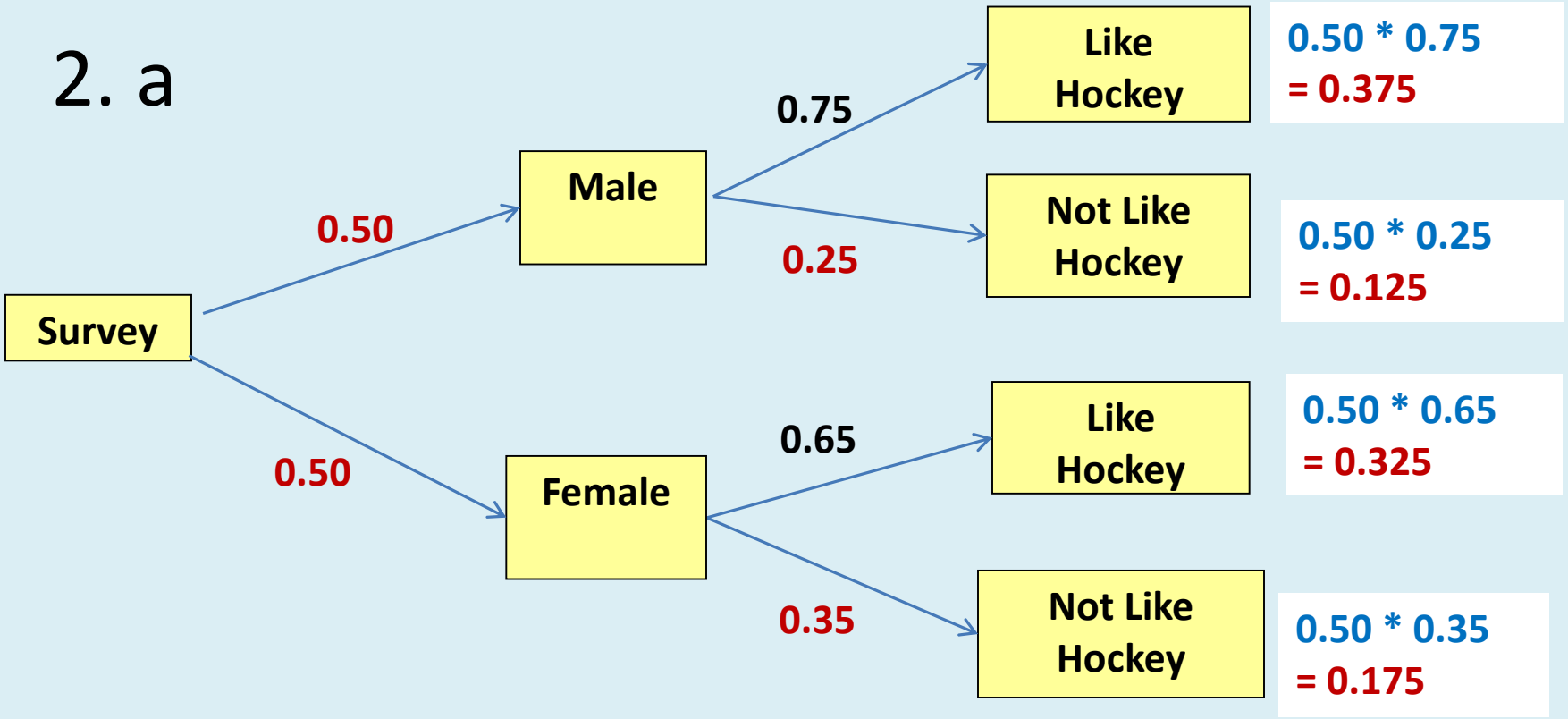
b. (.55)(.60) = .33 33%

c. (.45)(.30) = .135 13.5%

d. (.55)(.6) + (.45)(.70) = 0.645 64.5%

Packet p.6 Answers

2. a



b. (.5)(.65) = 0.325 32.5%

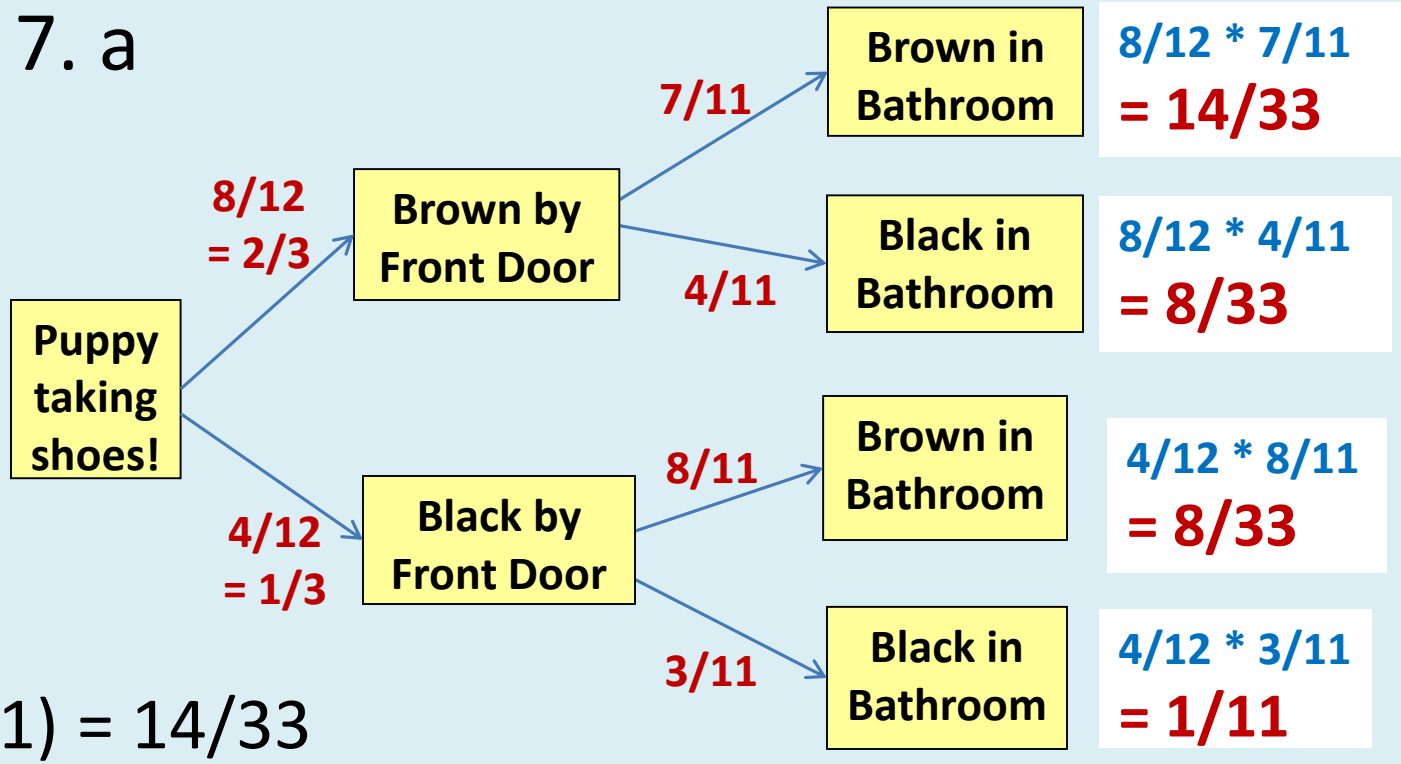
c. (.5)(.25) + (.5)(.35) = 0.30 30%

d. (.5)(.25) = 0.125 12.5%

Packet p.7 Answers

1. 4/9
2. 2/9
3. 7/48
4. 1/20
5. 1/6
6. 1/221

7. a



7. b. (8/12)(7/11) = 14/33

8. a. (.5)(.14) = .07 7%

b. (.5)(.86) + (.5)(.83) = .845 84.5%

c. 83/169 = 49.1%

d. 83%

	Male	Female
Right-handed	86	83
Left-handed	14	17
Total	100	100

Packet Page 8 – 9 Answers

1. a) 5/36
   b) 5/18
   c) 13/18
2. ½; Yes
3. ¼; Yes
4. 0
5. 1/9
   (mutually inclusive)
6. 5/9

(Table for #1 on next slide)

7. a) 53/71
   b) 18/71
8. 11/26
9. a) 7/26
   b) 5/26
   c) 5/13

Packet Page 8 Table for #1

1. a) 5/36
   sum = 6

   b) 5/18
   sum < 6

   c) 13/18
   sum ≥ 6

	1	2	3	4	5	6
1	1, 1	1, 2	1, 3	1, 4	1, 5	1, 6
2	2, 1	2, 2	2, 3	2, 4	2, 5	2, 6
3	3, 1	3, 2	3, 3	3, 4	3, 5	3, 6
4	4, 1	4, 2	4, 3	4, 4	4, 5	4, 6
5	5, 1	5, 2	5, 3	5, 4	5, 5	5, 6
6	6, 1	6, 2	6, 3	6, 4	6, 5	6, 6

Packet Page 10 Answers

1. (2/52)(26/51)/(2/52) = 26/51 = .5098 51%
2. (2/52)(26/51)/(2/52) = 26/51 = .5098 51%
3. 0.25/0.55 = 5/11 = .455 = 45.5%
4. 0.15/0.45 = 1/3 = .333 = 33.3%
5. (8/16)x(7/15) = 7/30 = 23.3%
6. (8/16) x (3/15) = 1/10 = 10%
7. a) 714/1375
   b) 661/1375
   c) 128/293
   d) 438/661

Packet Page 11 Answers

8. a) 78/663 = 2/17 = 11.8%
   b) 561/ 663 = 11/13 = 85%
   c) 78/165 = 26/55 = 47%
   d) 175/498 = 35%

9. a) 15/28 = 54%
   b) 1/2 = 50%
   c) 7/15 = 47%
   d) 6/14 = 3/7 = 43%

	Yes	No	Total
Male	7	8	15
Female	7	6	13
Total	14	14	28

Packet Page 12 Answers

1. Skip for now

   We'll discuss on a later day

2. Skip for now

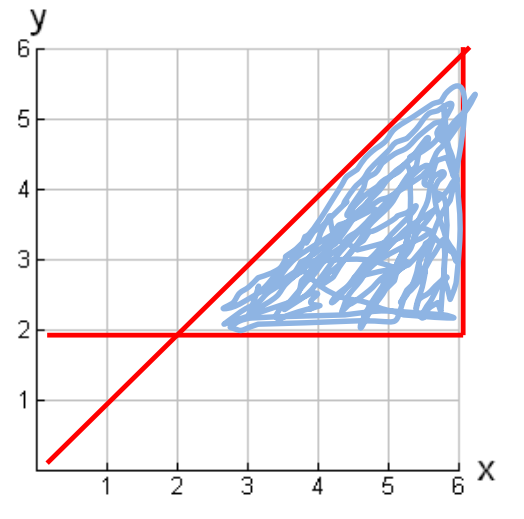
   We'll discuss on a later day

3.) 10*9*8 = 720

4.) ½

5.) 8/36 = 2/9

6.) 11/35



$$\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)+\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)+\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)=\left(\frac{11}{35}\right)$$

Packet Page 12-13 Answers

7.) $8 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 - 2(10 \cdot 10 \cdot 10 \cdot 10)$

$= 7{,}980{,}000$

8.) The probability of pulling out a total of $2 is greater. (create a tree diagram)

9.) a.) 5/22 b.) 5/22

10.) 21/22

11a.)

Packet Page 13 Answers

11. b.) (.6 x .5) + (.4 x .3) = .42 (42%) c.) 50%

d.) $\frac{P(\text{C Alex \& not GK})}{P(\text{not GK})} = \frac{(0.4)(0.7)}{(0.6)(0.5) + (0.4)(0.7)} = 0.483$

*This is a "given" problem in disguise…it says "***If*** you are not the goal keeper"…so that means you are given that information.

Packet Page 13 Answers

12. $\frac{0.087}{0.68} = 12.8\%$

13. 1/26

14. a.) 58/79

    b.) 21/79

    c.) 14/35 = 2/5

	Male	Female	Total
Light Green Parakeet	21	14	35
Sky Blue Parakeet	16	28	44
Total	37	42	79

Packet Page 14 Answers

1. $\frac{8}{20} \bullet \frac{9}{20} = \frac{9}{50}$ OR 18%

2. $\frac{18}{40} = \frac{9}{20}$ OR 45%

3. 1 x 3 x 2 = 6 options

4. $\frac{1}{28} \bullet \frac{1}{32} = \frac{1}{896}$ OR 0.11%

5. 6! = 720 arrangements

6. ${}_9C_4$ = 126 options

7.

A. $\frac{17}{125}$ OR 13.6%

B. $\frac{119}{125}$ OR 95.2%

C. $\frac{88}{201}$ OR 43.78%

D. $\frac{5}{125} = \frac{1}{25}$ OR 4%

Packet Page 15 Answers

8. 0.3/0.75 = 40 %

9. 0.28/0.65 = 43.08%

10.

	Likes Coffee	Doesn't Like Coffee	Total
Age 14 - 18	**4**	**16**	**20**
Age 19 - 23	**22**	**8**	**30**
Total	**26**	**24**	**50**

B. $\frac{13}{25}$ OR 52 %

C. $\frac{2}{3}$ OR 66.7%

D. $\frac{2}{5}$ OR 40%

E. $\frac{11}{15}$ OR 73.3%

Packet Page 15 Answers

11.

A. $\frac{36}{91}$ OR 39.56%

$$\left(\frac{9}{14}\right)\left(\frac{8}{13}\right)=\frac{36}{91}$$

B. $\frac{81}{91}$ OR 89.01%

$$\left(\frac{9}{14}\right)\left(\frac{8}{13}\right)+\left(\frac{9}{14}\right)\left(\frac{5}{13}\right)+\left(\frac{5}{14}\right)\left(\frac{9}{13}\right)=\frac{81}{91}$$

C. $\frac{45}{91}$ OR 49.45%

$$\left(\frac{9}{14}\right)\left(\frac{5}{13}\right)+\left(\frac{5}{14}\right)\left(\frac{9}{13}\right)=\frac{45}{91}$$

D. $\frac{10}{91}$ OR 10.99%

$$\left(\frac{5}{14}\right)\left(\frac{4}{13}\right)=\frac{10}{91}$$

Packet p. 16-17 Answers

1. 17/70 = 24.3%
2. 3/10 = 30%
3. 1/3 = 33.3%
4. 3/7 = 42.9%
5. 13/31 = 41.9%
6. 9/25 = 36%
7. 1700
8. 1/5 = 20%
9. Experimental because data was collected
10. Yes. The ad is saying gum helps your teeth by saying dentists recommend chewing it.
11. Answers will vary.
    Ex/ They could survey more dentists. 10 dentists is not a representative sample.

Packet p. 17 Answers

12.

Die	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

P(A) = 1/3 P(B) = 2/3

The game is not fair because the probability of each person winning is not equal.

Packet p. 18-21

- Check Scanned **Answers**
  on the website