Day 8
Quiz Review and Quiz Day!

Honors Math 2
Unit 6: Probability

Warm-up

1. The ski club with ten members is to choose three officers captain, co-captain, and secretary. How many ways can those offices be filled?

2. You are on your way to Hawaii and of 15 possible books, you can only take 10. How many different collections of 10 books can you take?

3. Dominoes offers a deal that says you can order a pizza with at most 5 toppings for $9.99. If there are a total of 12 types of toppings, how many different pizzas could you order?

4. On a fair dice, what is the probability of rolling a multiple of 3 or a number greater than 4? Are these events mutually inclusive or exclusive?

5. A family who breeds dogs made the following observations:
   - 30% of their dogs are males
   - 15% of females are brown colored
   - 56% of males are not brown colored

What is the probability there is a brown male?

Warm-up   Answers

1. The ski club with ten members is to choose three officers captain, co-captain, and secretary. How many ways can those offices be filled?

$$_{10}P_3 = 720$$

2. You are on your way to Hawaii and of 15 possible books, you can only take 10. How many different collections of 10 books can you take?

$$_{15}C_{10} = 3003$$

3. Dominoes offers a deal that says you can order a pizza with at most 5 toppings for $9.99. If there are a total of 12 types of toppings, how many different pizzas could you order?

$$_{12}C_5 + _{12}C_4 + _{12}C_3 + _{12}C_2 + _{12}C_1 + _{12}C_0 = 1586$$

4. On a fair dice, what is the probability of rolling a multiple of 3 or a number greater than 4? Are these events mutually inclusive or exclusive?

$$2/6 + 2/6 - 1/6 = 3/6 = 1/2 \quad \text{Mutually Inclusive}$$

5. A family who breeds dogs made the following observations:
   -30% of their dogs are males
   - 15% of females are brown colored
   -56% of males are not brown colored

What is the probability there is a brown male?

0.132 = 13.2%

(use tree diagram)

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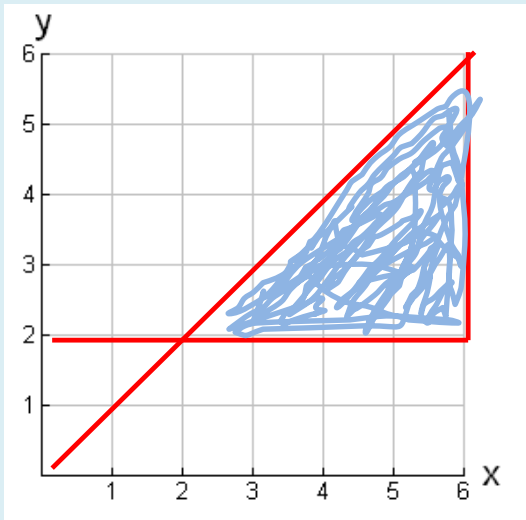
$$\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)+\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)+\left(\frac{12}{36}\right)\left(\frac{11}{35}\right)=\left(\frac{11}{35}\right)$$

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.)

0.60 — Coach Sam

0.50 — Goal Keeper — 0.30

0.50 — Not Goal Keeper — 0.30

0.40 — Coach Alex

0.30 — Goal Keeper — 0.12

0.70 — Not Goal Keeper — 0.28

11. b.) $(.6 \times .5) + (.4 \times .3) = .42$ (42%)   c.) 50%

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

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

Homework Answers

12. $\dfrac{.087}{.68} = 12.8\%$

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

Tonight's Homework

Packet Page 14 and 15

Quiz Review

Are You Ready For Your Last Quiz In Honors Math II??

Some things to Know, Memorize, AND Understand how to use are…

$$_nP_r = \text{———}$$

$$_nC_r = \text{———}$$

Factorial:
For any integer n>0,
n! $= \underline{n(n-1)(n-2)(n-3)…(3)(2)(1)}$
If n=0, 0! $= \underline{1}$
Ex: 4! = ____

Intersection of two sets **(A __ B) :**
_____

Union of two sets **(A __ B) :**
_____

Compliment of a set**:**
_____

P(not A) = **P(____) = _____**

If A and B are **Independent** events, then
P(A and B) = **P(A __ B) = _____**
If A and B are **Dependent** events, then
P(A, then B) = **_____**

If A and B are **Mutually Inclusive or Exclusive** Events
P(A or B) = **P(A __ B) = _____**

If A and B are **Conditional** Events

P(A given B) = **P(A __ B) = _____**

Quiz Review

Are You Ready For Your Last Quiz In Honors Math II??
Some things to Know, Memorize, AND Understand how to use are…

$$_nP_r = \frac{n!}{(n-r)!}$$

$$_nC_r = \frac{n!}{(n-r)! \bullet r!}$$

Factorial:
For any integer n>0,
  n! = n(n−1)(n−2)(n−3)…(3)(2)(1)
If n=0, 0! = 1
        Ex: 4! = 4·3·2·1

Intersection of two sets **(A ∩ B) :**
All the elements that appear **in both sets**
(the "overlap" of the two sets)

Union of two sets **(A ∪ B) :**
Everything **in either set**
(the items in A or B alone or both)

Compliment of a set**:**
all elements in the universal
set that are **NOT** in the
initial set
P(not A) = **P(A^C) = 1 - P(A)**

If A and B are **Independent** events, then
    P(A and B) = **P(A ∩ B) = P(A) · P(B)**
If A and B are **Dependent** events, then
    P(A, then B) = **P(A) · P(B after A)**
                    assume success on 1st draw

If A and B are **Mutually Inclusive or Exclusive** Events
    P(A or B) = **P(A ∪ B) = P(A) + P(B) − P(A ∩ B)**

If A and B are **Conditional** Events

P(A given B) = $P(A|B) = \dfrac{P(\text{A and B})}{P(B)}$

Quiz Review Continued…

1) When rolling a die twice, find the probability of rolling an even number then a multiple of 3.

P(even) * P(mult. of 3) → 3/6 * 2/6 = 6/36 = 1/6

2) When rolling a die once, find the probability of rolling an even number or a multiple of 3.

Mutually Inclusive Events

P(even) + P(mult. of 3) – P(even & mult. of 3) =
3/6   +   2/6   -   1/6   = 4/6 = 2/3

Quiz Review Continued…

3) Jack is a student in Bluenose High School. He noticed that a lot of the students in his math class were also in his chemistry class. In fact, of the 60 students in his grade, 28 students were in his math class, 32 students were in his chemistry class, and 15 students were in both his math class and his chemistry class.

a) Draw a Venn diagram and help Jack with his calculations.

Class

Math

Chemistry

13

15

17

15

b) Calculate P(math U chemistry) **45/60 = ¾**
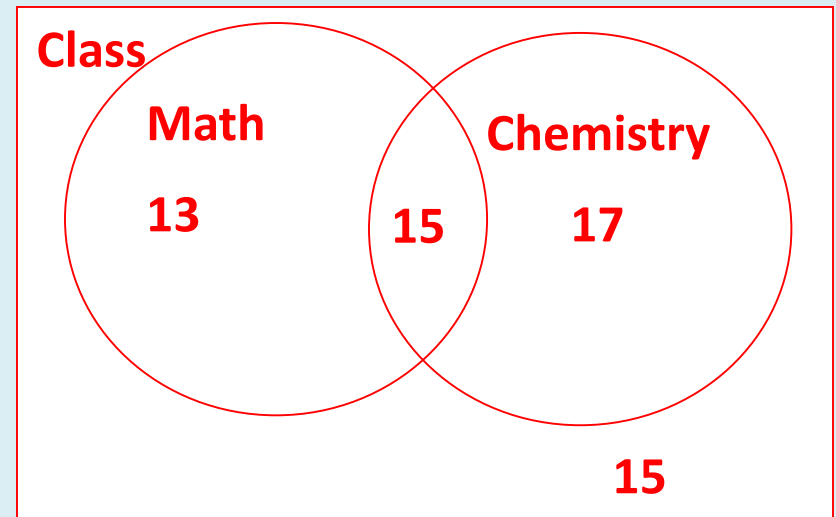
c) Calculate P(math ∩ chemistry) **15/60 = ¼**

d) Calculate the probability of selecting a student at random who was either in his math class or his chemistry class, but not both. **30/60 = ½**

e) Calculate P(Jack's Class ᶜ) **15/60 = ¼**

Quiz Time!!

Start Time ~

End Time ~

After The Quiz Start on Tonight's Homework :

Packet Page 12 – 13 ALL
* Omit Problem #s 1 & 2 On Page 12 for now *

Note - Unit 6 Test is Wednesday, May 5