Name: _____ Date: _____

Unit #10 Review

In a bowl of marbles, there are 10 red ones, 6 green ones, and 8 blue ones.

3/4 1. If a marble is chosen at random from the bowl, find P(red one or a blue one)? **18/24**

5/36 2. If two marbles are chosen at random with replacement, find P(red and a blue)? **10/24 · 8/24**

15/92 3. If two marbles are chosen at random without replacement, find P(they are both red)? **10/24 · 9/23**

A person rolls two dice, one after the other.

11/18 4. P(even sum) or P(sum of 9) **18/36 + 4/36**

11/18 5. P(odd sum) or P(sum less than 5) **18/36 + 6/36 − 2/36**

5/11 6. What is the probability that the sum of two rolls is an <u>even</u> number **given** at least one of the rolls is a <u>4</u>?
3/11 + 3/11 − 1/11

+	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

A card is chosen from a standard deck of cards. The drawer is looking for clubs and face cards.

	Club	Not a Club	
Face card	3	9	12
Not a face card	10	30	40
	13	39	52

1/4 7. Find P(Club) **13/52**

1/4 8. Find P(Club | Not a Face Card) **10/40**

3/52 9. Find P(Club ∩ Face Card) **3/52**

49/52 10. Find P(Not a Club ∪ Not a Face Card) **39/52 + 40/52 − 30/52**

yes! 11. Are the events Club and Not a Face Card <u>Independent</u> of each other?
10/52 = 13/52 · 40/52 → 5/26 = 5/26

21/32 12. In a Coordinate Algebra class, 22 students were male and 10 students were female. Out of those students, 11 of the guys and 4 of the girls passed the EOCT. If a person is chosen at random from the class, what is the probability of choosing a girl or a person that did NOT pass the EOCT?

P(g) + (NP) − P(both)
10/32 + 17/32 − 6/32

	Pass	Not Pass	
Male	11	11	22
Female	4	6	10
	15	17	32

13.

male   left handed

288   12   8

192
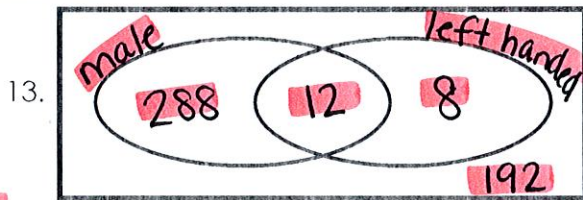
> Of 500 athletes surveyed, 300 were male and 20 were left-handed. Only 8 of the left-handed athletes were female.

77/125   14. What is the probability that an athlete was male or was left-handed? $\dfrac{288+12+8}{500}$

In a survey of 450 people, 200 of whom are female, it was found that 225 prefer chocolate ice cream including 99 males. Use this information to complete the table below.

|	Males	Females	
Vanilla	151	74	225
Chocolate	99	126	225
	250	200	450

½   15. The person likes chocolate. $225/450$

151/250   16. The person like vanilla, given they are male. $151/250$

351/450   17. The person likes vanilla or is a female. $225+200-74/450$

no!   18. Are being a male and liking chocolate independent events?

$99/450 \neq 250/450 \cdot 225/450 \rightarrow 11/50 \neq 5/18$

Use the Venn diagram to find the following probabilities.
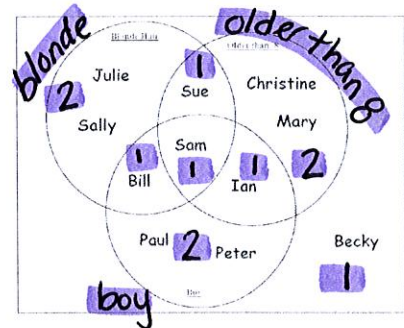
5/11   19. P(blonde hair)

2/11   20. P(blonde hair ∩ Boy)

8/11   21. P(Older than 8 ∪ Boy)

3/11   22. P(Older than 8 ∪ Boy)'

blonde   older than 8

Julie   Sue   Christine

2   Sally   Mary

Sam

Bill   Ian   2

Paul 2 Peter   Becky 1

boy

0.5   23. The probability of a randomly chosen boy playing basketball is 0.30. The chance that a boy plays both basketball and football is 0.05. The chance that a boy plays football is 0.25. What is the probability that a randomly chosen boy plays basketball or football? $P(b \cup f) = 0.3 + 0.25 - 0.05$

$P(b \cup f) = 0.5$

0.25   24. Assume that the following events are dependent:
- The probability that a high school student eats breakfast is 0.8.
- The probability that a high school senior will eat breakfast and get over 6 hours of sleep is 0.2.

What is the probability that a high school senior will get over 6 hours of sleep, given that the person ate breakfast? $\dfrac{0.2}{0.8} = \dfrac{0.8 \cdot P(\text{over 6hrs} \mid \text{ate breakfast})}{0.8}$