Name _____

Probability and Odds

You must show all of your work! Solve the problems below and fill in missing letters correctly to answer the following question:

What did one math book say to the other math book?

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1. Suppose that Diana flips a coin 3 times.
   (a) Write down the sample space of flipping a coin 3 times:

   (b) What is the theoretical probability that Diana had exactly one head appearing in those 3 flips?

   P_t(one head)=_____

2. Suppose that you roll 2 dice. Calculate the odds that you rolled doubles.

   odds(doubles)=_____

3. Mary loves to play cards. After shuffling, she draws one at random. What is the theoretical probability that the card Mary drew was a seven?

   P_t(seven)=_____

4. Suppose that you shuffle a regular deck of cards and draw a card at random. What are the odds that the card you drew is a black queen?

   odds(black queen)=_____

5. Lisa has a spinner which has the numbers 1 through 7 equally spaced apart. What are the odds that she will get a prime number when spinning?

   odds(prime)=_____

6. Michael has a bag filled with ping-pong balls which have the numbers 2 through 21 painted on them. If he draws one ball at random from the bag, what is the theoretical probability that the number on the ball is even?

P_t(even)=_____

7. Danny has a bag filled with ping-pong balls which have the numbers 2 through 21 painted on them. If he draws one ball at random from the bag, what are the odds that the number on the ball is even?

odds(even)=_____

8. Jessica spins a spinner which has the numbers 1 through 5 equally spaced apart. On her first spin, Jessica gets a 2; on her second spin, Jessica gets a 5; on her third spin Jessica gets a 3; and on the fourth spin, Jessica gets a 5. What is the experimental probability of spinning a 2?

P_e(2)=_____

9. Anthony and his friend Jake play a guessing game. Anthony thinks of a number between 7 and 27 and then Jake tries to guess the number that Anthony is thinking of. What is the theoretical probability that the number Anthony's thinking of is 23?

P_t(23)=_____

10. Kevin has a container which has tennis balls that have the numbers 1 through 33 painted on them. If he draws a ball at random, what are the odds that the number on the ball is a multiple of 5?

odds(multiple of 5)=_____

11. Suppose you find a bowl filled with change. You determine that there are 73 pennies, 4 nickels, 19 dimes, and 4 quarters in the bowl. What is the theoretical probability of randomly selecting a penny?

P_t(penny)=_____

12. Suppose you find a bowl filled with change. You determine that there are 73 pennies, 4 nickels, 19 dimes, and 4 quarters in the bowl. What are the odds of randomly selecting a penny?

odds(penny)=_____

13. At a birthday party you are blindfolded. You are then told to randomly draw a treat from a bag which has 21 pencils, 13 erasers, and 11 packs of gum. What is the theoretical probability of randomly drawing an eraser?

P_t(eraser)=_____

14. Alex rolls a 7 sided die. What are the odds that he rolled a 2?

odds(2)=_____

15. You decide to go fishing one warm summer day. Suppose there are 10 walleye, 15 northern pike, 44 sunfish, and 11 bass in the lake. When you hook into a fish, what is the theoretical probability that you will catch a walleye?

P_t(walleye)=_____

16. You decide to go fishing one warm summer day. Suppose there are 10 walleye, 15 northern pike, 44 sunfish, and 11 bass in the lake. When you hook into a fish, what are the odds that you will catch a bass?

odds(bass)=_____

17. You decide to go fishing one warm summer day. Suppose there are 10 walleye, 15 northern pike, 44 sunfish, and 11 bass in the lake. If you have kept 2 sunfish, 1 bass, and 1 walleye, what is the theoretical probability that you will catch a northern pike?

P_t(northern pike)=_____

To fill in the missing letters, here's what you need to do. Suppose that the answer to question 1 was 4/3. Since Y=4/3 below, everywhere you see a 1 in a box below, you should put a Y in the same box.

B=3/8	D=73/27	E=1/25	G=11/69	H=1/6	I=1/20
L=1/2	M=1/8	N=1/5	O=2/9	P=73/100	R=1/4
S=1/13	T=1	V=15/76	W=13/45	Y=4/3	

12	10	2	'	7		1	10	6	14	4	8
	15	4		9	'	17	4		16	10	7
			15	5		10	13	2			
		11	8	10	1	6	4	15	3		