Name _____   Date_____

Worksheet 11.3 : Complementary Events
Inclusive vs. Mutually Exclusive Events

For any event A, P(A) + P(A') = ____1_____, that is P(A') = ____1____- P(A).

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1. Suppose that an event A has probability of $\frac{3}{8}$. What is P(A')? _____5/8_____

2. Suppose that the probability of snow is 0.58, What is the probability that it will NOT snow?   .42

If A and B are _mutually exclusive_ events, then P(A or B) = P(A) + P(B).
and
If A and B are _inclusive_ events, then P(A or B) = P(A) + P(B) – P(A∩B).

A card is chosen from a well-shuffled deck of 52 cards.
        What is the probability that the card will be:

3. a king OR a queen? _____8/52_____

4. a red jack OR a black king? _____4/52_____

5. a face card OR a card with a prime number? _____30/52_____

6. an even card OR a red card? _____36/52_____

7. a spade or a jack? _____12/52_____

A spinner number 1-10 is spun. Each number is equally likely to be spun.
What is the probability of spinning:

8. an even number OR a power of three? _____7/10_____

9. an odd number OR a power of three? _____6/10_____

10. a number less than 8 OR a divisor of 15? _____7/10_____

11. Look at the solution to the following problem and see if you can find the error (there definitely is a mistake). Correct the error to find the right answer.

$$P(\text{drawing an ace OR a black card}) = P(\text{ace}) + P(\text{black}) = \frac{4}{52} + \frac{26}{52} = \frac{30}{52} = \frac{15}{26}$$

Since there are 2 black aces you have to subtract those so that those cards are not chosen twice. So the correct answer is: 4/52 + 26/52 – 2/52 = 28/52. (which reduces to 7/13)

Make sure you can use a table to find probabilities. Below is a table of how many teams were picked correctly on a bracket on the first day of the NCAA tournament.

Games picked correctly	Probability	Games picked correctly	Probability
3	.02	9	.12
4	.06	10	.07
5	.13	11	.03
6	.14	12	.02
7	.17	13	.02
8	.21	14 or more	.01

Find the following probabilities

12. P(less than 8 games)   13. P(10 or 11 games)   14. P (more than 12 games)

_____.52_____   _____.10_____   _____.03_____

15. P(not 14 or more games)   16. P(Not an odd number of games)
_____.99_____   _____.51_____