

Name \_\_\_\_\_

Date \_\_\_\_\_

## Worksheet 11.3 : Complementary Events Inclusive vs. Mutually Exclusive Events

For any event  $A$ ,  $P(A) + P(A') = \underline{\hspace{2cm}}$ , that is  $P(A') = \underline{\hspace{2cm}} - P(A)$ .

1. Suppose that an event  $A$  has probability of  $\frac{3}{8}$ . What is  $P(A')$ ? \_\_\_\_\_
2. Suppose that the probability of snow is 0.58, What is the probability that it will NOT snow? \_\_\_\_\_

If  $A$  and  $B$  are mutually exclusive events, then  $P(A \text{ or } B) = P(A) + P(B)$ .  
and

If  $A$  and  $B$  are inclusive events, then  $P(A \text{ or } B) = P(A) + P(B) - P(A \cap B)$ .

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? \_\_\_\_\_
4. a red jack OR a black king? \_\_\_\_\_
5. a face card OR a card with a prime number? \_\_\_\_\_
6. an even card OR a red card? \_\_\_\_\_
7. a spade or a jack? \_\_\_\_\_

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? \_\_\_\_\_

9. an odd number OR a power of three? \_\_\_\_\_

10. a number less than 8 OR a divisor of 15? \_\_\_\_\_

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.

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

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)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. P(not 14 or more games)

16. P(Not an odd number of games)

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