Unit 7 Lesson 4: Probability using And and Or

Warm-Up

1) What is the probability that the randomly drawn card will be a red card?

2) What is the probability that the randomly drawn card will not be a red card?

3) What is the probability that the randomly drawn card will be a spade?

5) What is the probability that the randomly drawn card will not be a spade?

Using the rules for OR

$P(A \cup B) = P(A) + P(B)$ **if the events are mutually exclusive

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$ **if the events are NOT mutually exclusive

Example 1:

What is the probability that the randomly drawn card will be a king or a queen?

Example 2:

What is the probability that the randomly drawn card will be a heart or a spade?

Example 3:

What is the probability that the randomly drawn card will be an ace or a face card?

Example 4:

What is the probability that the randomly drawn card will be a numbered card or a heart?

Example 5:

Suppose we know that the randomly drawn card is a spade. Knowing this, what is the probability that the randomly drawn card is the queen of spades?

Example 6:

What is the probability that the randomly drawn card will be a red face card?

Example 7:

What is the probability that the randomly drawn card will be a red card or a prime number?

Name: Date:

Unit 7 Lesson 4 Graded Practice

1) What is the probability that the randomly drawn card will be a heart or red?

2) What is the probability that the randomly drawn card will be a king or a queen?

3) What is the probability that the randomly drawn card will be an even or a red card?

4) Find the probability of getting a four when rolling a fair 6-sided die.

5) Find the probability of getting an odd number when rolling a fair 6-sided die.

6) Find the probability of getting a number greater than 3 when rolling a fair 6-sided die.

7) Find the probability of getting a number greater than 7 when rolling a fair 6-sided die.

8) You are dealt one card from a 52-card deck. Find the probability that you are not dealt a king.

9) You are dealt one card from a 52-card deck. Find the probability that you are dealt a 7 or a black card.

10) You are dealt one card from a 52-card deck. Find the probability that you are not dealt a face card.

11) A spinner numbered 1-10 is spun; each number is equally likely to be spun. What is the probability of spinning an even number or a power of 3?

12) A spinner numbered 1-10 is spun; each number is equally likely to be spun. What is the probability of spinning a number less than 8 or a divisor of 15?

13) 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.

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

14) Two seniors, one from each government class are randomly selected to travel to Washington, D.C. Wes is in a class of 18 students and Maureen is in a class of 20 students. Find the probability that both Wes and Maureen will be selected.