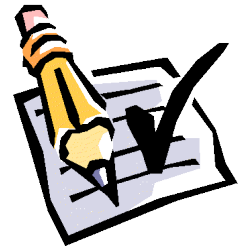


Name _____ Date _____ Hour _____

7th Grade Advanced – Unit 5 Assessment - Study Guide



The Assessment will cover the following concepts:

Unit 5 Concepts:

- 28- Probability & Likelihood
- 29- Compound Probability
- 30- Samples & Populations
- 31- Scatter Plots

Concept 28- Probability & Likelihood

You randomly choose one shape from the bag. (a) Find the number of ways the event can occur. (b) Find the favorable outcomes of the event.

- 1. Choosing a square
- 2. Choosing a circle
- 3. *Not* choosing a star



You spin the spinner once. Find the theoretical probability of the event.

- 4. Spinning a 5
- 5. Spinning an odd number

6. Spin the spinner 20 times. Tally your results below.

1	2	3
4	5	6

- A) What is your experimental probability of getting a 5?
- B) How does your experimental probability compare to the theoretical probability of getting a 5?

7. A factory produces 90 pairs of designer jeans. An inspector randomly chooses 6 pairs of jeans and discovers that 1 of the pairs of jeans is defective.
- What is the experimental probability that a pair of jeans inspected will be defective?
 - How many of the 90 pairs of jeans would you expect to be defective?
8. Of the 40 randomly chosen students surveyed, 27 are involved in extracurricular activities at school. There are 680 students in the school. Predict the number of students in the school who are involved in extracurricular activities.
9. You randomly pull out 5 socks from your drawer. 3 of them are white. If you have 40 socks in your drawer, how many of them should be white?
10. You survey your 22 classmates on their favorite color. Six choose green as their favorite color. There are 396 students at your school. How many students in the school do you predict would choose green as their favorite color?

Concept 29- Compound Probability

Use the Fundamental Counting Principle to find the total number of possible outcomes.

1.

Shirts	
Style	Short-Sleeved, Long-Sleeved, Sweatshirt
Size	Small, Medium, Large, Extra Large

2.

Sports	
Location	Gym, Park, Beach
Activity	Volleyball, Soccer, Frisbee, Flag-Football, Running, Bike Riding

3. The cooler contains 10 grape juice bottles and 15 cranberry juice bottles. You randomly choose two bottles. What is the probability that both bottles are cranberry juice?

4. You flip a coin and you roll a number cube. What is the probability that you flip heads and roll a number less than 3?

5. You randomly choose one of the cards from the deck. You put the card back in the deck and draw a second card.
 - a. Is this an example of independent or dependent events? Explain.

 - b. Find the theoretical probability of $P(A \text{ and } 2)$.

 - c. Find the theoretical probability of $P(A \text{ and even (not face cards)})$.

6. Your friend randomly chooses of the cards from the deck. Your friend keeps the card and then draws a second card.
 - a. Is this an example of independent or dependent events? Explain.

 - b. Find the theoretical probability of $P(A \text{ and } 2)$.

 - c. Find the theoretical probability of $P(A \text{ and even(not face cards)})$.

Concept 30- Samples and Populations

Determine whether the sample is *biased* or *unbiased*. Explain.

- 1** 5. You want to estimate the number of students in your school who play a musical instrument. You survey the first 15 students who arrive at a band class.

6. You want to estimate the number of books students in your school read over the summer. You survey every fourth student who enters the school.
7. You want to estimate the number of people in a town who think that a park needs to be remodeled. You survey every 10th person who enters the park.

Determine whether the conclusion is valid. Explain.

- 2 8. You want to determine the number of students in your school who have visited a science museum. You survey 50 students at random. Twenty have visited a science museum, and thirty have not. So, you conclude that 40% of the students in your school have visited a science museum.
9. You want to know how the residents of your town feel about building a new baseball stadium. You randomly survey 100 people who enter the current stadium. Eighty support building a new stadium, and twenty do not. So, you conclude that 80% of the residents of your town support building a new baseball stadium.

Which sample is better for making a prediction? Explain.

10. **Predict the number of students in a school who like gym class.**

Sample A	A random sample of 8 students from the yearbook
Sample B	A random sample of 80 students from the yearbook

11. **Predict the number of defective pencils produced per day.**

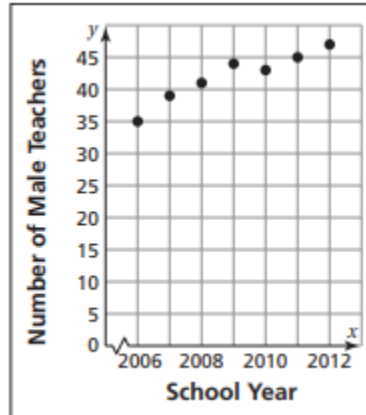
Sample A	A random sample of 500 pencils from 20 machines
Sample B	A random sample of 500 pencils from 1 machine

- 3 12. **FOOD** You ask 125 randomly chosen students to name their favorite food. There are 1500 students in the school. Predict the number of students in the school whose favorite food is pizza.

Favorite Food	
Pizza	58
Hamburger	36
Pasta	14
Other	17

Concept 31- Scatter Plots

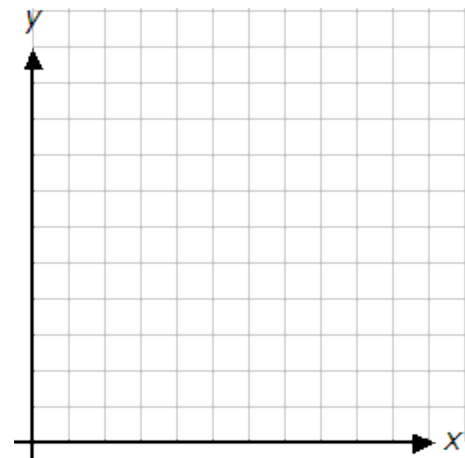
1. The scatter plot shows the number of male teachers in a school district from 2006 to 2012.
- In what school year did the school district have 41 male teachers?
 - How many male teachers did the district have in the 2012 school year?
 - Describe the relationship shown by the data.



2. The table shows the distance you travel in a 6-hour period. Make a scatter plot of the data.

Hours, x	Distance (miles), y
1	50
2	102
3	153
4	204
5	254
6	305

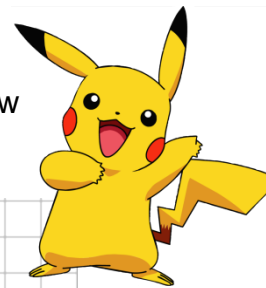
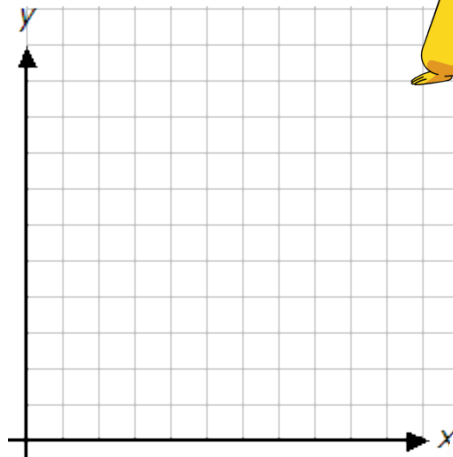
- Make a scatter plot of the data and draw a line of fit.
- Write an equation of the line of fit.
- Interpret the slope and the y -intercept of the line of fit.
- Predict how many members the gym will have in December.



3. The table shows the number of losses y a gamer has x weeks after getting a new video game .



Week, x	1	2	3	4	5	6	7
Losses, y	15	12	10	7	6	3	1



- Describe the relationship as positive, negative or none. **Explain.**
- Write an equation of best fit.
- Interpret the slope and y-intercept of the line of fit.