| LESSON 12-4 | **Making Predictions with Experimental Probability** |

Practice and Problem Solving: A/B

Make a prediction based on experimental probability.

1. A bowler knocks down at least 6 pins 70 percent of the time. Out of 200 rolls, how many times can you predict the bowler will knock down at least 6 pins?

   _____

2. A tennis player hits a serve that cannot be returned 45 percent of the time. Out of 300 serves, how many can you predict will not be returned?

   _____

3. West Palm Beach, Florida, gets rain about 16 percent of the time. On how many days out of 400 can residents of West Palm Beach predict they will get rain?

   _____

4. Rob notices that 55 percent of the people leaving the supermarket choose plastic bags instead of paper bags. Out of 600 people, how many can Rob predict will carry plastic bags?

   _____

5. A baseball player reaches base 35 percent of the time. How many times can he expect to reach base in 850 at-bats?

   _____

6. Fredericka can make 65 percent of her shots from the free-throw line. If she shoots 75 times, how many shots can she expect to make?

   _____

7. In a current-events class, a professor predicted that at least 78 percent of students prefer getting their news from a digital source rather than from a print source. He polled 3 classes. The results are shown in the table below.

	Class 1	Class 2	Class 3
Digital	20	14	30
Print	5	10	7

   In which class(es) did his prediction hold true? Explain.

   _____
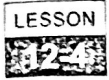
LESSON 12-4 <u>**Making Predictions with Experimental Probability**</u>

Practice and Problem Solving: D

Solve each problem. The first one is done for you.

1. In 1951, Odessa, Texas had high temperatures of at least 95°F for 11 percent of the year. During that year, how many days could residents predict would have highs of at least 95°F? Show your work.

   Use the proportion to solve. Round to the nearest whole number.

   $\dfrac{11}{100} = \dfrac{x}{365}$ $x = \underline{\textbf{40}}$

   The residents of Odessa could predict highs of at least 95°F on

   __**40**__ days of the year.

2. A survey shows that 67 percent of peanut-butter lovers prefer chunky-style. Out of 850 people surveyed, how many can be predicted to say they prefer chunky-style peanut butter?

   Use the proportion to solve. Round to the nearest whole number.

   $\dfrac{67}{100} = \dfrac{x}{850}$ $x = \underline{\hspace{2cm}}$

   _____ people can be expected to say they prefer chunky-style peanut butter.

3. A football player forces at least 1 turnover in 27.5 percent of the games he plays. If the player plays in 57 games, in how many games can he predict he will force a turnover? Show your work.

   Use the proportion to solve. Round to the nearest whole number.

   $\dfrac{27.5}{100} = \dfrac{x}{57}$ $x = \underline{\hspace{2cm}}$

   He can expect to force a turnover in _____ games.

4. Sandy says she splits her time on her homework as follows: 45 percent on math, 20 percent on science, 18 percent on social studies, and 17 percent on language arts.

   a. If Sandy spends 100 hours on homework over a month, predict how much time she spend on each subject.

      Math: _____   Science: _____

      Social Studies: _____   Language Arts: _____

   b. If Sandy only spends 75 hours on homework over a month, predict how much time she spends on each subject to the nearest tenth of an hour.

      Math: _____   Science: _____

      Social Studies: _____   Language Arts: _____

LESSON 12.4	# Making Predictions with Experimental Probability

Reteach

When you have information about previous events, you can use that information to predict what will happen in the future.

If you can throw a basketball into the basket 3 out of 5 times, you can predict you will make 6 baskets in 10 tries. If you try 15 times, you will make 9 baskets. You can use a proportion or multiply to make predictions.

A. Use a proportion.

A survey found that 8 of 10 people chose apples as their favorite fruit. If you ask 100 people, how many can you predict will choose apples as their favorite fruit?

$\dfrac{8}{10} = \dfrac{x}{100}$ Write a proportion. *8 out of 10 is how many out of 100?*

$\dfrac{8}{10} = \dfrac{x}{100}$ Since 10 times 10 is 100, multiply 8 times 10 to find the value of *x*.

$\times 10$

$x = 80$

You can predict that 80 of the people will choose apples as their favorite fruit.

B. Multiply.

Eric's baseball coach calculated that Eric hits the ball 49 percent of the time. If Eric receives 300 pitches this season, how many times can Eric predict that he will hit the ball?

$0.49 \times 300 = x$

$147 = x$

Eric can predict that he will hit the ball 147 times.

Solve.

1. On average, 25 percent of the dogs who go to ABC Veterinarian need a rabies booster. If 120 dogs visit ABC Veterinarian, how many of them will likely need a rabies booster?

   Set up a proportion: $\dfrac{}{100} = \dfrac{x}{}$

   Solve for *x*: $x =$ _____ .

   _____ dogs will likely need a rabies booster.

2. About 90 percent of seventh graders prefer texting to emailing. In a sample of 550 seventh graders, how many do you predict will prefer texting?

   $0.9 \times 550 =$ _____

   _____ seventh graders will likely prefer texting.