Name _____ Date _____

Make Predictions Using Experimental Probability

Experimental probability is based on the results of an experiment, or real-world data. You can find experimental probability using the following fraction:

$$\text{Experimental probability} = \frac{\text{number of times an event occurs}}{\text{total number of trials}}$$

Think about this example. Eliza has taken 12 penalty shots, and 3 of her shots resulted in goals. Find the experimental probability that Eliza scores a goal on a penalty shot. Make sure to simplify your fraction!

$\frac{3}{12} = \frac{1}{4}$ So, the experimental probability that Eliza scores a goal on a penalty shot is $\frac{1}{4}$.

You can use experimental probability to make predictions! Out of Eliza's next 20 penalty shots, how many goals would you expect her to score?

$\frac{1}{4} = \frac{n}{20}$ *Write a proportion that sets the two ratios equal to each other.*

$\frac{1}{4} \cdot 20 = \frac{n}{20} \cdot 20$ *Multiply both sides by 20.*

$5 = n$ *Simplify. So, you can expect that Eliza would score 5 goals out of her next 20 penalty shots.*

Use experimental probability to make each prediction.

1. Pizza Paradise recently sold 10 pizzas, 5 of which were pepperoni pizzas. Considering this data, how many of the next 16 pizzas sold would you expect to be pepperoni pizzas?

8

2. Victor is playing cards with his uncle. So far, Victor has won 6 out of 8 games. Out of the next 12 games, how many could Victor expect to win given the past data?

9

3. Of the 9 birds that came to the bird feeder this morning, 3 were blue jays. Based on this data, how many of the next 24 birds would you expect to be blue jays?

8

4. At the skating rink, 3 of the last 5 customers rented skates. Considering this data, how many of the next 20 customers would you expect to rent skates?

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