Name _____ Class _____ Date _____

Practice

Form G

Experimental and Theoretical Probability

You roll a standard number cube 10 times. The results are shown below.

6, 4, 6, 1, 5, 2, 4, 2, 4, 3

Find the experimental probability of each outcome.

1. P(rolling a 5) $\frac{1}{10}$

2. P(rolling a 6) $\frac{1}{5}$

3. P(rolling an even number) $\frac{7}{10}$

4. P(rolling a 1) $\frac{1}{10}$

5. What is the experimental probability of rolling an odd number on a standard number cube? For 50 rolls of the number cube, predict the number of rolls that will result in an odd number. **0.3; 15**

Find the theoretical probability of each outcome.

6. P(rolling a 5) $\frac{1}{6}$

7. P(rolling a 6) $\frac{1}{6}$

8. P(rolling an even number) $\frac{1}{2}$

9. P(rolling a 1) $\frac{1}{6}$

10. P(rolling an odd number) $\frac{1}{2}$

11. P(rolling a multiple of 3) $\frac{1}{3}$

A bag contains 2 red ping-pong balls, 3 green ping-pong balls, 3 blue ping-pong balls, and 1 yellow ping-pong ball. Find the probability of randomly selecting each outcome.

12. P(not red) $\frac{7}{9}$

13. P(not green) $\frac{2}{3}$

14. P(not blue) $\frac{2}{3}$

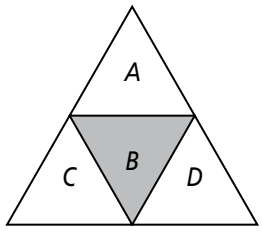
15. P(not yellow) $\frac{8}{9}$

Name _____ Class _____ Date _____

Practice (continued) *Form G*

Experimental and Theoretical Probability

16. A game is played where students throw beanbags at the target shown to the right. Each region of the target is the same size and every beanbag hits the target. For one game, section A was hit 6 times, section B 3 times, section C 8 times, and section D 5 times.



a. What is the experimental probability of hitting section D? $\frac{5}{22}$

b. What is the theoretical probability of hitting section D? $\frac{1}{4}$

17. Reasoning How are the probability of an event and the probability of its complement related mathematically? **Their sum is equal to 1.**

Two standard number cubes are rolled. Find each probability.

18. P(a sum equal to 2) $\frac{1}{36}$

19. P(sum not equal to 2) $\frac{35}{36}$

20. P(a product equal to 15) $\frac{1}{18}$

21. P(a sum greater than 6) $\frac{7}{12}$

22. P(a product less than or equal to 2) $\frac{1}{9}$

23. P(a sum equal to 12) $\frac{1}{36}$

24. Open-Ended Is it possible for an event to have a probability of 1? Explain your answer. **Yes; Answers may vary. Sample: The probability of rolling a number cube and rolling a number between 1 and 6, inclusive, is 1.**

25. Error Analysis Out of 20 coin flips, your classmate gets heads 14 times. She determines that the experimental probability of getting heads is $\frac{1}{2}$. What error did your classmate make? What is the correct value for experimental probability? Explain. **Your classmate confused theoretical probability with experimental probability. The experimental probability of getting heads is the number of number of heads divided by the total number of flips, or $\frac{14}{20} = \frac{7}{10}$.**