Date _____

1.2 In a Perfect World

Focus: theoretical probability, experimental probability, number sense

Chapter 1

Warm Up

1. Write $\frac{10}{40}$ in lowest terms.

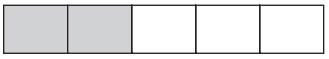
$\frac{10}{40} =$

2. Write 3 equivalent fractions for $\frac{1}{2}$.

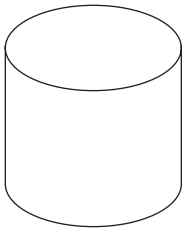
$\frac{1}{2} =$

3. Write 90% as a fraction in lowest terms.

4. What percent of the bar is shaded?



5. Shade 75% of the cylinder.



6. What is the chance of picking a king from a deck of 52 cards? Show your answer as a fraction in lowest terms.

Collecting Data to Calculate Probability

Imagine flipping this penny 10 times. In a perfect world you would get 5 heads and 5 tails. This is theoretical probability.

1. Answer the following questions as though you were in a perfect world.

a) What would happen if you flipped a coin 50 times?

_____

b) If you rolled a die 60 times, how many 3s would you get? _____

c) If you cut a deck of cards 40 times, how many hearts would you get? _____

2. In a perfect world, the _____ _____ of flipping heads is 50%.

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- **Experimental probability** is the chance of something happening based on experimental results.
- After collecting data, it is useful to compare experimental probability with theoretical probability.

Go to pages 1–2 to write the definition for **experimental probability** in your own words.

3. a) Create and label a bar graph showing the "perfect world" results for rolling a die 60 times.
- Title the graph.

b) Roll a die *exactly* 60 times. Record your results in the tally chart.

c) Create and label a bar graph showing your results in part b).

1	
2	
3	
4	
5	
6	

d) For each of your results, express the experimental probability as a fraction.

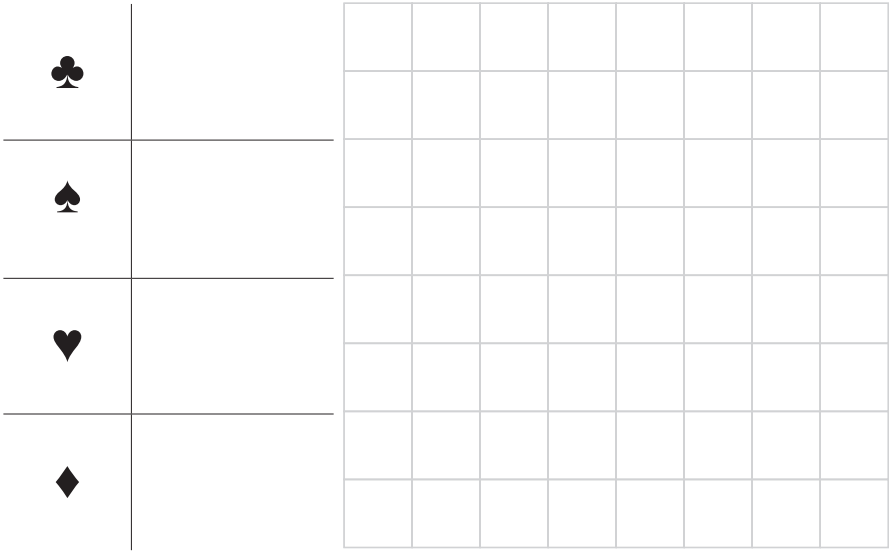
1 = _____ 2 = _____ 3 = _____

4 = _____ 5 = _____ 6 = _____

4. a) Create and label a bar graph showing the "perfect world" results for cutting a deck of cards 40 times.
- Title the graph.
- Label each axis.

b) Record the results for obtaining each of the 4 suits when you cut a deck of cards *exactly* 40 times.

c) Create and label a bar graph showing your results in part b).



d) For each of your results, express the experimental probability as a fraction and then a percent.

Clubs: _____ or _____ %

Spades: _____ or _____ %

Hearts: _____ or _____ %

Diamonds: _____ or _____ %

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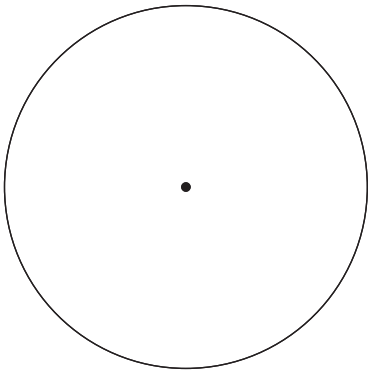
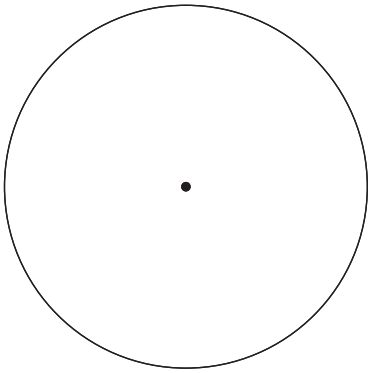
5. a) Create and label a circle graph showing the "perfect world" results for flipping a coin 50 times.
- Include a title.
- Label each sector.



b) Flip a coin *exactly* 50 times. Record your results in the tally chart.

Heads	Tails

c) Create and label a circle graph for the results obtained in part b).



☑ Check Your Understanding

1. a) Did anyone in the class get "perfect world" results for all 3 of the experiments? YES _____ NO _____

b) Explain why few, if any, people in the class received "perfect world" results for all 3 of the experiments.