Name _____

Inequalities on a Number Line

P 12-1

Name three solutions to each inequality and graph all the solutions on a number line.

1. $b < 8$ _____

2. $y > 15$ _____

3. $n > 5$ _____

4. $c < 10$ _____

5. A weatherman said the high temperature today will be above 90°F. Name three temperatures that could be the high temperature if the weatherman is correct.

_____

6. A ride at the fair says that riders must weigh less than 120 lb. Use the inequality $c < 120$ to find three weights of people that could go on the ride.

_____

Test Prep

7. Which is a solution to the inequality $x < 16$?

A. 15 **B.** 16 **C.** 17 **D.** 18

8. **Writing in Math** Is 15.6 a solution to the inequality $b < 15$? Explain why or why not.

_____

_____

_____

Name _____

Translating Words to Equations

P 12-2

Write an equation for each sentence.

1. g minus 6 leaves 4. _____

2. 5 times $t = 40$. _____

3. d divided by 7 is 4. _____

4. r less than 16 is 12. _____

5. 7 cars plus f cars equal 21 cars. _____

6. 22 birds less than h birds is 50 birds. _____

Write an equation for each problem.

7. The life span of a swan is up to 50 years in captivity. In the wild, a swan lives up to 19 years. How much longer can a swan live in captivity than in the wild? _____

8. In a conference room, seats are arranged with 6 people around each table. There is seating for 96 in a conference room. How many tables are in the room? _____

Test Prep

9. Which equation matches the sentence?

   12 more than y is 19.

   A. $12y = 19$ **B.** $\frac{y}{12} = 19$ **C.** $y - 12 = 19$ **D.** $y + 12 = 19$

10. **Writing in Math** Gary has a rope that is 9 ft long. He wants to find out how many inches long the rope is. He uses the equation $\frac{x}{12} = 9$. Will Gary's equation find the correct answer? Explain.

_____

_____

_____

Name _____

Equations and Graphs

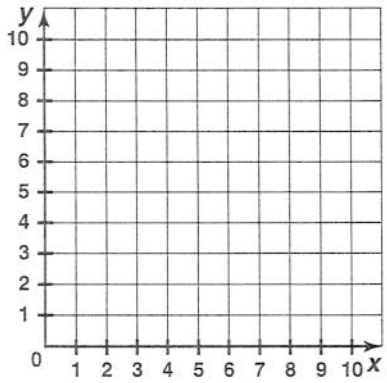
P 12-3

Use the equation $y = 2x + 4$. Find the value of y for each value of x.

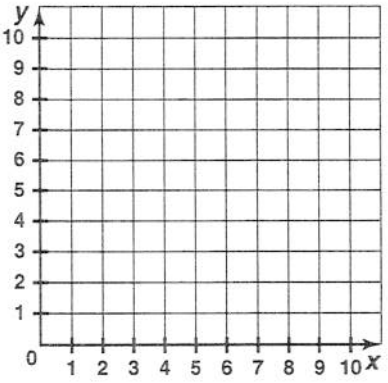
1. $x = 3$ _____
2. $x = 1$ _____
3. $x = 10$ _____
4. $x = 25$ _____
5. $x = 0$ _____
6. $x = 7$ _____

Graph each equation on the given coordinate graph.

7. $y = 2x$



8. $y = x - 3$



9. Find five ordered pairs on the graph of the equation $y = 3x - 1$.

_____

Test Prep

10. Which equation has the ordered pair (3, 5) as a solution?

A. $y = 2x$ **B.** $y = 2x + 1$ **C.** $y = 2x - 1$ **D.** $y = 3x - 5$

11. **Writing in Math** Laura looked at the ordered pairs (1, 2), (2, 3), and (3, 4) and said that $1 \times 2 = 2$, so the rule must be $y = 2x$. Is she correct? Explain.

_____

_____

_____

_____

Name_____

PROBLEM-SOLVING SKILL **P 12-4**

Extra or Missing Information

Decide if each problem has extra information or not enough information. Tell any information that is not needed or that is missing. Solve the problem if you have enough information.

1. Angie wrote 5 letters and 7 e-mails on Monday. On Tuesday, she sent the same number of e-mails as she did on Monday, but she wrote 2 fewer letters. On Wednesday, she wrote 4 letters and did not send any e-mails. How many letters did Angie write from Monday through Wednesday?

_____

_____

2. Darrell has 4 boxes of screws that he uses for building wooden toy cars. Each box weighs 10 kg. The cars weigh 200 kg when they are finished. How many screws does Darrell have altogether?

_____

_____

3. Nigel and Cynthia went to the movies. They each had a large drink and they shared a large popcorn. How much did they spend altogether, including their admission?

_____

MOVIES!		
Admission:		$6.00
Drinks:	Large	$2.00
	Small	$1.25
Popcorn:	Large	$3.00
	Medium	$2.25
	Small	$1.75

4. Jessica went to the theater with $10.00. She wants a popcorn and a drink. The movie is 1 hr 44 min long. If she buys a large drink, what is the largest size popcorn Jessica can purchase?

_____

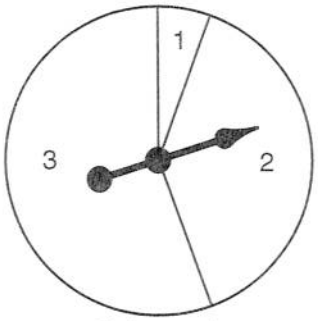
_____

Name _____

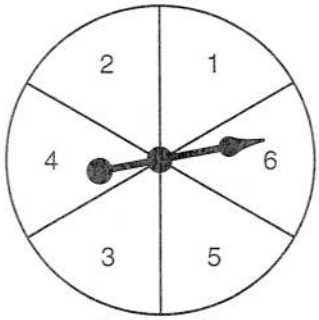
Understanding Probability

P 12-5

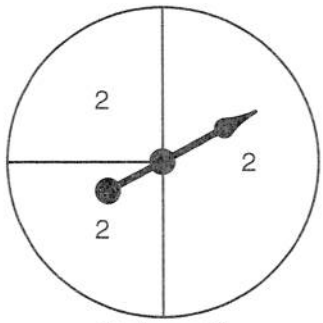
Tell whether it is likely, unlikely, impossible, or certain to get each number when each spinner is spun.



Spinner A



Spinner B



Spinner C

1. 1 on Spinner A _____

2. 2 on Spinner B _____

3. 3 on Spinner A _____

4. 4 on Spinner C _____

5. 2 on Spinner C _____

6. **Number Sense** A fair game is played in which a player wins if his or her color card is drawn. There are three players and a 30-card deck of red, blue, and green cards. How many red cards are there? _____

Test Prep

7. How many red marbles must there be in a bag of 12 marbles for it to be likely that a red marble is drawn?

   A. 4 **B.** 5 **C.** 6 **D.** 7

8. **Writing in Math** Explain the difference between a fair game and an unfair game.

_____

_____

Name _____

Listing Outcomes

P 12-6

A coin has two sides, heads and tails. List all the possible outcomes for each situation.

1. Flipping one coin, one time _____

2. Flipping two coins, one time each _____

3. Flipping three coins, one time each

_____

4. **Reasoning** A number cube with the numbers 1, 2, 3, 4, 5, and 6 is tossed two times. Is it likely, unlikely, certain, or impossible for the same number to be tossed both times? _____

5. A deli offers lunch sandwiches for $1.00 with a choice of two cheeses and three meats. How many possible sandwich combinations of one meat and one cheese are there?

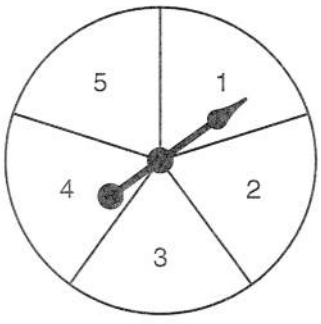
_____

Test Prep

6. A coin is flipped twice. Which is the probability that both will be heads?

   A. Likely **B.** Unlikely **C.** Impossible **D.** Certain

7. **Writing in Math** If a coin is flipped, and the spinner is spun, how many total possible outcomes are there? Explain.



_____

_____

_____

_____

_____

Name _____

Finding Probability

P 12-7

Write the probability of drawing each letter out of a bag containing the letters in the word MISSISSIPPI.

1. M _____ 2. I _____ 3. S _____ 4. P _____

5. **Number Sense** If there are 12 possible outcomes, what is the lowest probability that will still make an outcome likely? _____

There are 52 color cards. 13 are red, 13 are blue, 13 are yellow, and 13 are green. Each color has cards numbered from 0 to 12.

6. What is the probability of a card being drawn at random that is red? _____

7. What is the probability of a card being drawn at random that is a 12? _____

Test Prep

8. If the letter tiles are randomly selected, which is the probability of selecting A?

   A. $\frac{3}{10}$ **B.** $\frac{2}{10}$

   C. $\frac{3}{20}$ **D.** $\frac{1}{10}$

9. **Writing in Math** A game is played by flipping two coins. One player wins if both are heads. The other player wins if both are tails. Is this a fair game? Explain.

_____

_____

_____

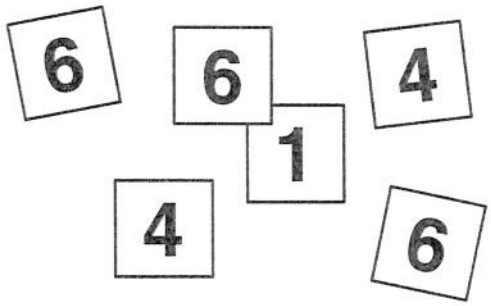
_____

Name _____

Making Predictions

P 12-8

Use the number tiles for 1–6. Predict how many times you would pick each number. You put the number back after each pick.



1. 6 when you pick a number 50 times

   _____

2. 1 when you pick a number 12 times

   _____

3. 4 when you pick a number 30 times _____

4. 5 when you pick a number 10 times _____

5. An even number when you pick a number 60 times _____

6. An odd number when you pick a number 36 times _____

Test Prep

7. When three coins are tossed, how many times out of 100 would you expect the result to be either three heads or three tails?

   A. 10 **B.** 20 **C.** 25 **D.** 30

8. **Writing in Math** Jennifer used a three-color spinner 100 times. Her results are shown. Do you think the spinner was fair? Explain.

Red	Green	Blue
30	29	41

_____

_____

_____

_____

Name _____

PROBLEM-SOLVING STRATEGY **P 12-9**

Work Backward

Solve by working backward. Write the answer in a complete sentence.

1. There are 21 students in Travis's fourth-grade class. Four new students joined his class after school began this year, and 2 moved away. One student was transferred to another fourth-grade teacher. How many students were in Travis's class at the beginning of the school year?

_____

_____

_____

2. Sir John Franklin was an explorer who traveled in Canada and the United States. He was 33 years old when he began exploring northwestern Canada. In a second expedition 17 years later, he explored as far as Alaska. 11 years later, Franklin died in an expedition in search of a Northwest Passage in 1847. In what year was Franklin born?

_____

3. Tessie has a volleyball game at 7:00 P.M. She needs to be there 20 min early to warm up for the game, and it takes her 45 min to get to the gym. What time should she leave her house?

_____

4. Frank bought lunch for $5.60 at a diner. He spent $2.00 to ride the bus to the mall and back, and spent $6.50 while he was at the mall. His friend Bill paid him back $5.00 that he had borrowed last week. If Frank arrived at home with $10.50 in his pocket, how much did he have when he left home that morning?

_____

Name _____

PROBLEM-SOLVING APPLICATION **P 12-10**

Duck Pond Game

Solve. Write the answer in a complete sentence.

In the duck pond game, players draw plastic ducks out of the pond to win a prize. Every player wins a prize. If you draw out a duck with a red mark on the bottom, you win a small prize. If you draw out a duck with a black mark, you win a large prize. If you draw out a duck with a green star, you win an extra large prize. There are 60 ducks in the pond. Two of them have green stars, 6 have black marks, and the rest have red marks.

1. What is the probability of drawing a duck with a red mark?

_____

_____

2. Is it likely, unlikely, impossible, or certain that you will win a prize when you draw out a duck?

_____

3. Each time a duck is drawn, it is returned to the duck pond. Out of 300 draws, how many do you predict will have green stars?

_____

_____

4. As soon as Jack finished dinner last night he spent 2 hr working on his science report, then another 30 min studying for a math test, and 45 min reading a mystery book before he fell asleep. If Jack fell asleep at 10:30 P.M., what time did he finish his dinner?

_____

5. Write an equation for the sentence. Nine years more than Tina's age is 27. Solve the equation for Tina's age.

_____