Math Journal - Chapter 11 - Probability

11.01   Create a spinner for which the theoretical probability of a winning outcome is either 2:5, 4:6 or 3:8. {5 is 72.5^o ; 6 is 60° and 8 is 45°}

11.02   Conduct an experiment in which you toss a coin 20 times. Record your results and find your experimental probability for tossing heads. Compare your results with a classmate and write a paragraph to discuss why your results varied or not.

11.03   Create a table to record the outcomes for 10 coin flips. Under the table record the theoretical probability and the experimental probability. What is the probability of flipping a heads on the 11th coin toss?

11.04   Create a flow map to show the sequence of steps for creating an organized list. Use the flow map to write a "how to" paragraph that explains how to create an organized list.

11.05   If you roll a number cube six times in a row, what is the probability that you will roll the numbers 1 - 6 in order? How did you determine this probability?

11.06   A scientists needs to predict the number of albino red-tailed deer can be found throughout North America. Describe how he could possibly do this without looking at every single deer in North America.

General Scoring Rubric:
- 0   No Response
- 1   Wrong response
- 2   Weak response
- 3   Showed understanding
- 4   Showed understanding and cited an example
- 5   Showed understanding, cited examples and communicated effectively enough to enable others to understand.

Math Objectives

4.03; 4.04

The student will learn to conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events.

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Introduction to Probability

Essential Question: To determine whether or not an event is impossible, unlikely, as likely as not, likely and certain we need to look at the probability as a fraction, decimal or percent. Which is your preference and why do you think this is true?

Objective (s) Numbers: **4.03; 4.04**
Outcomes: The student will learn to conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events.

Materials: Textbook pages 554–557; pennies, spinners
Anticipatory Set: Today we will learn to estimate the likelihood of an event and write and compare probabilities.

During the Lesson

Presentation of Information:
  Integration of Other Subjects: Writing (How To)
                                   Reading (vocabulary, problem solving, analyzing expectation)
  Integration of Reading: Reading for information and interpretation.
  Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Discuss concepts: impossible, unlikely, as likely as not, likely and certain. Discuss estimation and the likelihood of events. Examine writing probabilities.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Have the students assign the likelihood of an outcome to various events (30 days in June, Heads on a coin toss, rolling 12 with a single di ...
                         Practice writing various probabilities as %, decimal and fractions. {35% , 0.75, 1, 7/25}
                         Review comparing fractions, decimals and percents.

After the Lesson

Independent Practice   Text page 556–557 {1-4, 11-18, 21–26}
                         AIG: {5-18, 20–26}
                         Assign workbook page 11.1

Closure / Assessment: Create a spinner for which the theoretical probability of a winning outcome is either 2:5 ; 4:6 or 3:8. {5 is 72.5^o ; 6 is 60° and 8 is 45°}

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Math Objectives

4.02; 4.03; 4.04; 4.05; 4.06

The student will learn to use a sample space to determine the probability of an event; conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events; determine and compare experimental and theoretical probabilities for independent and dependent events; design and conduct experiments or surveys to solve problems; report and analyze results.

Instructor: _____	Time Frame: **80 minutes**
Subject: Math Grade 6	Date: _____

Experimental Probability

Essential Question:	Over the next two days you will be learning about experimental and theoretical probability. Each probability has its place in the world and the trick is to know when to use which. Can you come up with a set of rules (or plan) to guide your classmates to help make this decision?
Objective (s) Numbers:	**4.02; 4.03; 4.04; 4.05; 4.06**
Outcomes:	The student will learn to use a sample space to determine the probability of an event; conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events; determine and compare experimental and theoretical probabilities for independent and dependent events; design and conduct experiments or surveys to solve problems; report and analyze results.
Materials:	Textbook pages 558–561; pennies
Anticipatory Set:	Today we will learn to find the experimental probability of an event, understand and apply basic concepts of probability and select and use various types of reasoning and methods of proof.
Presentation of Information:	
Integration of Other Subjects:	Writing (compare/contrast)
	Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Discuss the vocabulary {experiment, outcome, sample space, theoretical probability, experimental probability}
	Model identifying outcomes and sample spaces. Create a Venn Diagram to compare and contrast Experimental and Theoretical Probabilities.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Complete the Guided Practice and 4-8 of the independent practice on page 560.

After the Lesson

Independent Practice	Text page 560-561 {9-14, 16, 20-21}
	AIG: {9-14, 16, 20-21}
	Assign workbook page 11.2
Closure / Assessment:	Conduct an experiment in which you toss a coin 20 times. Record your results and find your experimental probability for tossing heads. Compare your results with a classmate and write a paragraph to discuss why your results varied or not.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Math Objectives

4.03; 4.04

The student will be able to conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events; determine and compare experimental and theoretical probabilities for independent and dependent events.

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Theoretical Probability

Essential Question: Over the past two days you have been learning about experimental and theoretical probability. Each probability has its place in the world and the trick is to know when to use which. Can you come up with a set of rules (or plan) to guide your classmates to help make this decision?

Objective (s) Numbers: **4.03; 4.04**
Outcomes: The student will be able to conduct experiments involving simple and compound events; determine and compare experimental and theoretical probabilities for simple and compound events; determine and compare experimental and theoretical probabilities for independent and dependent events.

Materials: Textbook pages 564–567; coins, spinners
Anticipatory Set: Today we learn to find the theoretical probability of an event.

During the Lesson

Presentation of Information:
  Integration of Other Subjects: Writing (Opinion/Prediction)
                                   Reading (vocabulary, problem solving, analyzing expectation)
  Integration of Reading: Reading for information and interpretation.
  Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review and discuss randomly selected journal results from yesterday.
                           Discuss and model the vocabulary; theoretical probability, equally likely, fair, and number cube.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Demonstrate finding the probability of an event happening. Demonstrate finding the probability of an event not happening.
                           Practice finding theoretical probability as related to coin tosses and number cubes. Demonstrate the sum of the theoretical probability of desired outcome plus not should equal 1.

After the Lesson

Independent Practice   Text page 566–567 {1–13, 18–21, 24–29, 42}
                           AIG: {10 - 33, 36, 42}
                           Assign workbook page 11.3

Closure / Assessment: Create a table to record the outcomes for 10 coin flips. Under the table record the theoretical probability and the experimental probability. What is the probability of flipping a heads on the 11th coin toss?

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Math Objectives

4.01

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Make an Organized List

Essential Question:	If the total number of outcomes can usually be determined with multiplication, why do we need to make these organized lists? Can you develop a strategy or plan to determine when it is appropriate to multiply and when you must make a list?
Objective (s) Numbers:	**4.01**
Outcomes:	The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle.
Materials:	Textbook pages 570–573; 11.4 Practice B
Anticipatory Set:	Today we will learn to make an organized list to find all possible outcomes.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (How To)
	Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Model making a tree diagram to create an organized list.
	Demonstrate the word applications that tell you when you can use math to determine the total and when you must use a tree diagram to see the complete sample space.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Use the Practice 11.4 B as the guided practice for this skill.

After the Lesson

Independent Practice	Text page 572–573 {1–8, 15–22}
	AIG: {7–22)
	Assign workbook page 11.4
Closure / Assessment:	Create a flow map to show the sequence of steps for creating an organized list. Use the flow map to write a "how to" paragraph that explains how to create an organized list.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Name _____ Date _____ Class _____

Practice B
11-4 *Make an Organized List*

Make an organized list to answer each question.

1. Brian wants to buy a new bicycle. He can choose a 10-speed or 3-speed bike. The bikes come in red, blue, black, and purple. How many different bikes can Brian choose from?

2. Mr. Simon can leave for Miami on Monday, Tuesday, or Wednesday. He can fly, drive, or take a train. How many different travelling options does Mr. Simon have?

_____

3. The marching band is choosing new uniforms. They can select black or white pants. They can choose a blue, red, green, or black shirt. From how many different uniforms can the band choose?

4. Sara, Jimmy, and Chantall are sitting beside one another on a bench. In how many different orders could they possibly be sitting from left to right?

_____

Holt Middle School Math   Course 1

Math Objectives

4.01; 4.02; 4.03; 4.04

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle; Use a sample space to determine the probability of an event; Conduct experiments involving simple and compound events; Determine and compare experimental and theoretical probabilities for simple and compound events.

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Compound Events

Essential Question: Consider the method for determining compound events that the author of your text book showed you. Compare and contrast this method with the other method that your teacher explained. Which method do you prefer and why? (if you choose multiplication you will need to include a short discussion regarding how to know when you can't multiply)

Objective (s) Numbers: **4.01; 4.02; 4.03; 4.04**
Outcomes: The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle; Use a sample space to determine the probability of an event; Conduct experiments involving simple and compound events; Determine and compare experimental and theoretical probabilities for simple and compound events.

Materials: Textbook pages 574–577; Practice 11.5 B

Anticipatory Set: Today we will learn to list all the outcomes and find the theoretical probability of a compound event.

During the Lesson

Presentation of Information:
  Integration of Other Subjects: Writing (Instructions)
                                   Reading (vocabulary, problem solving, analyzing expectation)
  Integration of Reading: Reading for information and interpretation.
  Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Discuss compound events. Give examples and demonstrate the likelihood of occurrence.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use Practice 11.5 B as guided practice for today's

After the Lesson

Independent Practice   Text page 576–577 {1-4, 6-11, 27, 28}
                             AIG: {3-5, 10-13, 14-20, 28}
                             Assign workbook page 11.5

Closure / Assessment: If you roll a number cube six times in a row, what is the probability that you will roll the numbers 1 - 6 in order? How did you determine this probability?

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.
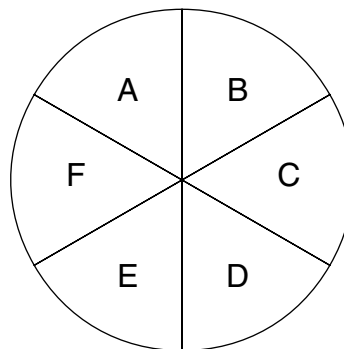
Name _____ Date _____ Class _____

This spinner is spun twice.

1. What is the probability of the spinner landing on *B* both times?

   _____

2. What is the probability of the spinner landing on *B*, then *C*?

   _____

3. What is the probability of the spinner landing on a vowel and then a consonant?

   _____

4. What is the probability of not spinning *D* either time?

   _____

A coin is tossed three times.

5. How many possible outcomes are there?   _____

6. What is the probability of the coin landing heads up three times?   _____

7. What is the probability of the coin landing heads up twice and tails up once?   _____

There are five cards numbered 1, 2, 3, 4, and 5 in a bag. Each time a card is drawn, it is replaced. Find the probability of each event.

8. P(1, then 2) _____   9. P(4, then 4) _____

10. P(even, then odd) _____   11. P(odd, then odd) _____

12. What is the probability of a coin landing on heads and a number cube landing on an even number?

   _____

Math Objectives

1.04a; 1.04d; 4.06

The student will be able to analyze computational strategies; judge the reasonableness of solutions; design and conduct experiments or surveys to solve problems; report and analyze results.

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Making Predictions

Essential Question:	The concepts that you learned today are the basis for all of those polls that you read and here about. The pollsters ask 1000 Americans what they think about a subject, then **extrapolate** the data. Do you think this provides a reasonable estimate of the truth? (Explain)

Objective (s) Numbers: **1.04a; 1.04d; 4.06**
Outcomes: The student will be able to analyze computational strategies; judge the reasonableness of solutions; design and conduct experiments or surveys to solve problems; report and analyze results.

Materials: Textbook pages 580–583; Problem Solving 11.6
Anticipatory Set: Today we will learn to use probability to predict future events.

During the Lesson

Presentation of Information:
  Integration of Other Subjects: Writing (summarization/application)
                Reading (vocabulary, problem solving, analyzing expectation)
  Integration of Reading: Reading for information and interpretation.
  Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review the steps for solving problems: Understand, Plan, Solve, Look Back
              Discuss how probabilities can be extrapolated from a smaller sample to a total population.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use the Problem Solving 11.6 as problems for the guided practice.

After the Lesson

Independent Practice   Text page 582–583 {1-6, 20-22}
                AIG: {4, 7, 8-11, 14, 21, 22}
                Assign workbook page 11.6

Closure / Assessment: A scientists needs to predict the number of albino red-tailed deer can be found throughout North America. Describe how he could possibly do this without looking at every single deer in North America.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Name _____ Date _____ Class _____

Problem Solving
Making Predictions

Write the correct answer.

U.S. Public High School Graduation Rates, Top 5 States

State	Number of Students	Percent that Graduate
Iowa	497,301	83.2%
Minnesota	854,034	84.7%
Nebraska	288,261	87.9%
North Dakota	112,751	84.5%
Utah	480,255	83.7%

1. In which state are students most likely to graduate from public high school? About how many of the students who are enrolled in that state now do you predict will graduate?

_____

_____

2. About how many students enrolled in North Dakota public high schools now do you predict will graduate?

_____

_____

3. About how many students enrolled in Minnesota public high schools now do you predict will graduate?

_____

_____

4. In which state do you predict more students in public high schools will graduate—Iowa or Utah? How many more?

_____

_____

Circle the letter of the correct answer.

5. The total U.S. high school graduation rate is 68.1%. There are 48,857,321 students enrolled in public schools. About how many of those students do you predict will graduate?

A about 332 million students

B about 20 million students

C about 33 million students

D about 16 million students

6. About 11% of all students in the U.S. are enrolled in private schools. There are more than 48 million students in the U.S. About how many do you predict will go to private schools?

F about 5,280,000 students

G about 6 million students

H about 52,800 students

J about 528,000 students

Holt Middle School Math   Course 1

Math Objectives

4.01 ; 4.02; 4.03; 4.04; 4.05; 4.06

The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle; Use a sample space to determine the probability of an event; Conduct experiments involving simple and compound events; Determine and compare experimental and theoretical probabilities for simple and compound events.

Instructor: _____	Time Frame: **80 minutes**
Subject: Math Grade 6	Date: _____

Probability Review

Essential Question:	What steps do you think have been the most helpful in preparing yourself for the examination on a set of skills? (decision making)
Objective (s) Numbers:	**4.01 ; 4.02; 4.03; 4.04; 4.05; 4.06**
Outcomes:	The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle; Use a sample space to determine the probability of an event; Conduct experiments involving simple and compound events; Determine and compare experimental and theoretical probabilities for simple and compound events.
Materials:	Textbook pages 590-593; Test Form B
Anticipatory Set:	Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don't feel as comfortable as others.

During the Lesson

Presentation of Information: Integration of Other Subjects:	
	Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Discuss the value of careful review, the process that should occur when errors are made and the importance of reviewing material that students are less comfortable with.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Discuss Instructions for the review on pages 590-593. Have the students review the Headings and address and questions or requests for immediate remediation.

After the Lesson

Independent Practice	Text page 590-593 {1-19} **AIG**: {1-19} Assign Test Form B
Closure / Assessment:	Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Name _____ Date _____ Class _____

Chapter Test
Form B

Write impossible, unlikely, likely, as likely as not, or certain to describe each event.

1. You win the lottery.

_____

2. The month of December has 31 days.

_____

3. The chance of Colleen winning a new DVD player is 0.05. Write this probability as a fraction and as a percent.

_____

4. For the experiment, identify the outcome shown and the sample space.

_____

_____

_____
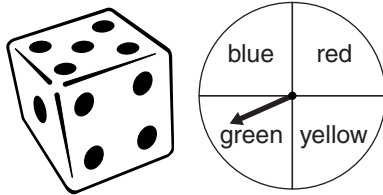
Outcome	Frequency
Lands on Red	5
Lands on Black	7
Lands on both colors	13

5. A dime is tossed onto a checkerboard 25 times and the results are shown in the table above. Find the experimental probability of tossing a dime and having it land on red.

_____

6. Find the experimental probability of tossing a dime and having it land on red or on black.

_____

7. Find the experimental probability of tossing a dime and having it land on both colors.

_____

Outcome	A	B	C	D	E
Frequency	I	IIII	⊬Ӿ	III	IIII

8. Samantha recorded the number of times a spinner landed on each letter. Based on Samantha's experiment, on which letter is the spinner most likely to land?

_____

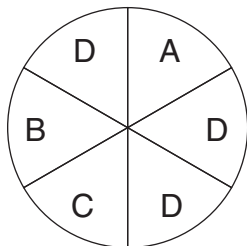**9.** On which letter is the spinner least likely to land?

_____

Holt Middle School Math   Course 1

CHAPTER 11 **Chapter Test**
Form B, continued

10. What is the probability of this spinner landing on D?

_____

11. What is the probability of rolling a number less than 5 on a fair number cube?

_____

12. Rebecca has a 5% chance of not completing the marathon. What is the probability that she will complete the marathon?

_____

13. Danica can choose an outfit from the following clothes: two pairs of slacks (navy or black), four blouses (red, blue, white, and striped), and three pairs of shoes (blue, black, and sandals). How many different choices of outfits does she have?

_____

14. If Danica chooses an outfit at random, find the probability of her selecting the black slacks, red blouse, and black shoes.

_____

15. You go to the local restaurant for lunch. You have 3 choices of meat (chicken, fish, or beef), 2 choices for a vegetable (peas or beans), and 2 choices for soup (tomato or vegetable). How many different choices are there for lunch?

Solve using the standard number cube and the spinner shown.
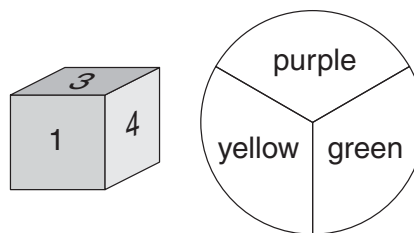
16. The number cube is rolled and the spinner is spun. What is the probability that you will roll a 2 and spin purple?

_____

17. What is the probability that you will roll 1 or 3 and spin yellow?

_____

18. What is the probability that you will roll an even number, and spin purple or green?

_____

19. About 4% of the items produced by a company are defective. Out of 8000 items, how many would you predict will be defective?

_____

20. If you roll a fair 12-sided die 300 times, how many times can you expect to roll an odd number?

_____

Instructor: _____   Time Frame: **80 minutes**
Subject: Math Grade 6   Date: _____

Probability Assessment

Essential Question: With the EOGs rapidly approaching, what action plan will you implement to ensure that you are well prepared and perform well?

Objective (s) Numbers: **4.01 ; 4.02; 4.03; 4.04; 4.05; 4.06**
Outcomes: The student will develop fluency with counting strategies to determine the sample space for an event. Include lists, tree diagrams, frequency distribution tables, permutations, combinations, and the Fundamental Counting Principle; Use a sample space to determine the probability of an event; Conduct experiments involving simple and compound events; Determine and compare experimental and theoretical probabilities for simple and compound events.

Materials: Cumulative Assessment (Form B)
Anticipatory Set: Today we will assess our mastery of Probability.

During the Lesson

Presentation of Information:
   Integration of Other Subjects: Writing (evaluation)
                                    Reading (vocabulary, problem solving, analyzing expectation)
   Integration of Reading: Reading for information and interpretation.
   Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Review the Practice Test, answer questions and model answers.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Discuss the Instructions.

After the Lesson

Independent Practice   Assign Cumulative Review Test Form B

Closure / Assessment: Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam?

                             Choose a Journal entry to share with your class.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Name _____ Date _____ Class _____

Select the best answer for questions 1–45.

1. On a trip the Jackson family records the mileage on their RV each week. The odometer reading at the beginning of the week was 42,617.9 and was 45,328.7 at the end of the week. What was the total number of miles driven that week?

  A 45,286.1 mi   **C** 2,710.8 mi

  B 3,289.2 mi   **D** 87,946.6 mi

2. A train must travel to a certain town in five days. The town is 3,125 miles away. How far must the train average per day in order to reach its destination on time?

  F 500 mi   **H** 600 mi

  G 550 mi   **J** 625 mi

3. Martina keeps track of the number of birds she sees at the bird feeder each morning. Last week the number of birds she saw each morning was 8, 10, 9, 11, 12, 6, and 8. What was the median number of birds she saw last week?

  A 8   **C** 10

  B 9   **D** 11

4. Solve $\frac{x}{12} = 9$.

  F $x = 21$ **H** $x = 108$

  G $x = 72$ **J** $x = 120$

5. Which of the following is a prime number?

  A 8   **C** 27

  B 11   **D** 35

6. Which set of numbers is ordered from least to greatest?

  F −6, −10, 0, 3

  G −7, −5, 2, 6

  H 4, 3, −2, −6

  J −3, −6, 9, 11

7. A sweater is on sale for 30% off the ticketed price of $42. How much will the sweater cost after the discount?

  A $12.60   **C** $29.40

  B $25.60   **D** $54.60

8. Which expression has a value of 24?

  F $8 \cdot (-3)$ **H** $-20 + (-4)$

  G $-12 + 12$ **J** $-6 \cdot -4$

9. Which data set has a mean of 35?

  A 41, 35, 30, 25, 35, 32

  B 42, 33, 37, 33, 40, 25

  C 52, 25, 23, 44, 35

  D 12, 90, 35, 65, 22

10. What is the probability of the spinner landing on 3 or 4?
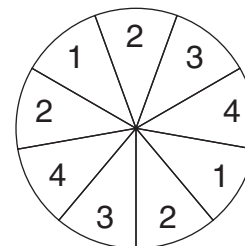
  F $\frac{1}{3}$ **H** $\frac{2}{3}$

  G $\frac{1}{2}$ **J** $\frac{4}{9}$

| CHAPTER | **Cumulative Test** |
| **11** | *Form B, continued* |

11. The sides of one triangle measure 4 ft, 6 ft, and 9 ft. The shortest side of a similar triangle measures 22 ft. What is the length of the longest side?

A 18 ft   **C** 49.5 ft

B 25 ft   **D** 60 ft

12. Name the quadrant of the coordinate plane where the point (4, −2) is located.

F I   **H** III

G II   **J** IV

13. Raul needs $1\frac{1}{2}$ cups of flour for a pie crust recipe. He only has half of that amount. How much flour does Raul have?

A $\frac{1}{2}$ cup   **C** 1 cup

B $\frac{3}{4}$ cup   **D** $2\frac{1}{4}$ cups

14. Which expression is *not* equal to one-fourth of *x*?

F 0.25*x*   **H** $\frac{x}{4}$

G 14% of *x*   **J** *x* ÷ 4

15. Which value is the greatest?

A −15 ÷ 3   **C** 25 ÷ (−5)

B −20 ÷ (−5)   **D** −15 ÷ (−3)

16. What is the sum of $\frac{2}{3} + \frac{7}{12}$?

F 1   **H** $1\frac{1}{2}$

G $1\frac{1}{4}$ **J** 2

17. Angles *A* and *B* are complementary. The measure of angle *A* is 42 degrees. What is the measure of angle *B*?

A 38 degrees   **C** 48 degrees

B 42 degrees   **D** 138 degrees

18. Solve *a* − 5.3 = 19.5.

F *a* = 24.8   **H** *a* = 12.3

G *a* = 14.2   **J** *a* = 3.7

19. Express 84,000,000 in scientific notation.

A 84×10^6 **C** 8.4×10^8

B 8.4×10^7 **D** 84×10^9

20. Which number has the greatest value?

F 176,435   **H** 185,432

G 167,543   **J** 185,684

21. Bargain Basement sold 589 pairs of shoes on Friday. They sold 25 more pairs on Saturday than on Friday. How many pairs did they sell on Saturday?

A 564   **C** 614

B 589   **D** 645

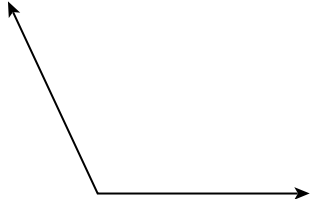| **Home Warehouse**		
Item	Price	Number Sold
Stove	$450	2
Dishwasher	$290	5
Washer	$890	4

22. Using the chart above, what were the total sales for dishwashers at Home Warehouse?

F $900   **H** $1,630

G $1,450   **J** $3,560

CHAPTER 11

Cumulative Test
Form B, *continued*

23. A pair of shoes costs $56. George bought the shoes on sale for $34.99. How much did George save?

A $19.54 **C** $22.39

B $21.01 **D** $24.36

24. What is $10\frac{1}{3}$ as an improper fraction?

F $\frac{3}{30}$ **H** $\frac{3}{31}$

G $\frac{30}{3}$ **J** $\frac{31}{3}$

25. What is the LCM of 12 and 15?

A 3 **C** 48

B 30 **D** 60

26. Joseph buys 3 pounds of hamburger. How many quarter-pound hamburgers can he make?

F $\frac{3}{4}$ **H** 12

G $1\frac{1}{2}$ **J** 16

27. Rendy has 4 rabbits with red eyes, 6 with blue eyes, 3 with brown eyes, and 2 with gold eyes. What is the ratio of red and gold eyes to blue eyes?

A 1 to 1 **C** 1 to 6

B 6 to 1 **D** 4 to 2

28. Express $\frac{3}{16}$ as a decimal.

F 0.1875 **H** 0.01875

G 0.316 **J** 3.16

29. Sarah missed 9 questions on a quiz with 60 questions. What percent of the questions did she get wrong?

A 10% **C** 15%

B 12% **D** 20%

30. Which number is between 0.45 and 0.479?

F 0.465 **H** 0.407

G 0.44 **J** 0.48

31. A number cube is labeled 2, 3, 5, 7, 9, and 12. What is the probability of rolling an odd number?

A $\frac{1}{2}$ **C** $\frac{3}{4}$

B $\frac{2}{3}$ **D** 1

32. The scale for a map is $\frac{1}{2}$ inch = 15 miles. How many miles apart are two cities that are $2\frac{1}{2}$ inches apart on the map?

F 25 mi **H** 75 mi

G 50 mi **J** 100 mi

33. Two angles of a triangle measure 42 and 88 degrees. What is the measure of the third angle?

A 40° **C** 90°

B 50° **D** 130°

34. The angle appears to have a measure of about _____ degrees.

F 170° **H** 90°

G 115° **J** 75°

Holt Middle School Math **Course 1**

CHAPTER **Cumulative Test**
11 *Form B, continued*

35. Find the product: -8×-9.

   A −72   **C** −81

   B 72   **D** 81

36. Find the volume of a cylinder with radius 4 feet and height 6 feet. Use 3.14 for π.

   F 1,205.76 ft^3 **H** 245.37 ft^3

   G 301.44 ft^3 **J** 150.72 ft^3

37. What is the area of a rectangle if its length is 15 cm and its width is 12 cm?

   A 27 cm^2 **C** 102 cm^2

   B 54 cm^2 **D** 180 cm^2

38. A radio station has a broadcast radius of 30 miles. How large an area does the station serve? Use 3.14 for π.

   F 94.2 mi^2 **H** 2,826 mi^2

   G 188.4 mi^2 **J** 3,210 mi^2

39. At the end of the first round on a popular quiz show, Thomas had a score of −350. During the second round Thomas scored 1,800 points. What was his score after the second round?

   A 2,150 points   **C** 1,450 points

   B 1,800 points   **D** 1,250 points

40. Simplify $\dfrac{18 - 3}{2 + 9 \div 3}$.

   F 3   **H** $\dfrac{11}{15}$

   G 5   **J** $\dfrac{11}{3}$

41. Which word phrase matches the expression $n - 21$?

   A twenty-one less than n

   B twenty-one plus n

   C n divided by 21

   D the product of 21 and n

42. A couple is planning their wedding. The caterer has given them a choice of 2 different main courses, 3 different vegetables, and 2 different salads. How many different types of meal choices does the couple have?

   F 6   **H** 8

   G 7   **J** 12

43. Martin tossed a fair coin 5 times and got tails 5 times. What is the probability that he will get tails on the next toss?

   A 1   **C** $\dfrac{1}{5}$

   B $\dfrac{1}{2}$ **D** $\dfrac{3}{4}$

44. Sandra needs 180 feet of purple ribbon to prepare wedding decorations. How many yards of ribbon is this?

   F 30 yd   **H** 60 yd

   G 45 yd   **J** 540 yd

45. 8 out of 12 students choose soccer as their favorite sport instead of running. To the nearest tenth of a percent, what percent of the students prefer soccer?

   A 33.3%   **C** 66.7%

   B 45.0%   **D** 72.0%

Name _____

Probability Assessment

#						#				
1	A	B	C	D		23	A	B	C	D
2	F	G	H	J		24	F	G	H	J
3	A	B	C	D		25	A	B	C	D
4	F	G	H	J		26	F	G	H	J
5	A	B	C	D		27	A	B	C	D
6	F	G	H	J		28	F	G	H	J
7	A	B	C	D		29	A	B	C	D
8	F	G	H	J		30	F	G	H	J
9	A	B	C	D		**31**	A	B	C	D
10	F	G	H	J		32	F	G	H	J
11	A	B	C	D		33	A	B	C	D
12	F	G	H	J		34	F	G	H	J
13	A	B	C	D		35	A	B	C	D
14	F	G	H	J		36	F	G	H	J
15	A	B	C	D		37	A	B	C	D
16	F	G	H	J		38	F	G	H	J
17	A	B	C	D		39	A	B	C	D
18	F	G	H	J		40	F	G	H	J
19	A	B	C	D		41	A	B	C	D
20	F	G	H	J		**42**	F	G	H	J
21	A	B	C	D		**43**	A	B	C	D
22	F	G	H	J		44	F	G	H	J
						45	A	B	C	D

Probability Assessment

#						#				
1	A	B	■	D		23	A	■	C	D
2	F	G	H	■		24	F	G	H	■
3	A	■	C	D		25	A	B	C	■
4	F	G	■	J		26	F	G	■	J
5	A	■	C	D		27	■	B	C	D
6	F	■	H	J		28	■	G	H	J
7	A	B	■	D		29	A	B	■	D
8	F	G	H	■		30	■	G	H	J
9	A	■	C	D		**31**	A	■	C	D
10	F	G	H	■		32	F	G	■	J
11	A	B	■	D		33	A	■	C	D
12	F	G	H	■		34	F	■	H	J
13	A	■	C	D		35	A	■	C	D
14	F	■	H	J		36	F	■	H	J
15	A	B	C	■		37	A	B	C	■
16	F	■	H	J		38	F	G	■	J
17	A	B	■	D		39	A	B	■	D
18	■	G	H	J		40	■	G	H	J
19	A	■	C	D		41	■	B	C	D
20	F	G	H	■		**42**	F	G	H	■
21	A	B	■	D		**43**	A	■	C	D
22	F	■	H	J		44	F	G	■	J
						45	A	B	■	D

Chapter 11 Assessment

5	100%
4	80%
3	60%
2	40%
1	20%
0	0%