

# 7th Grade Math

## Chapter 2: iLEAP Math, Grade 7

This section describes the overall design of the iLEAP Math test to be administered to students in grade 7. Test specifications, sample test questions, and scoring rubrics are provided so that teachers may align classroom practices with the state assessment.

### Test Structure

**The Math test consists of three parts, or subtests, which are administered in a single day:**

- Part 1: a 30-item multiple-choice session that **does not** allow the use of calculators
- Part 2: a 30-item multiple-choice session that **allows** the use of calculators
- Part 3: a 2-item constructed-response session that **allows** the use of calculators

The suggested testing times for the Grade 7 iLEAP Math test listed in Table 2.1 are estimates only. The Math test is **untimed**.

**Table 2.1: Suggested Testing Times**

Part	Description	Number of Items	Testing Time
1	Multiple Choice, no calculator	30	60 minutes
2	Multiple Choice, calculator	30	60 minutes
3	Constructed Response, calculator	2	30 minutes
TOTAL		62	150 minutes

Information about additional time needed to read test directions to students and accomplish other activities related to test administration is included in the *iLEAP Test Administration Manual*.

The Math test is composed of criterion-referenced test (CRT) items only. These items measure Louisiana GLEs that more closely match the Common Core State Standards (CCSS) focus areas.

### Item Types and Scoring Information

The test has sixty (60) multiple-choice items and two constructed-response items.

The multiple-choice items consist of an interrogatory stem and four answer options. These items assess a student's knowledge and conceptual understanding, and responses are scored 1 if correct and 0 if incorrect.

The constructed-response items, which involve a number of separate steps and application of multiple skills, are designed to assess one or more of the GLEs. The response format is open-ended and may include numerical answers, short written answers, and other types of constructed response (e.g., construct and draw rectangles [including squares] with given dimensions). Students may be required to explain in writing how they arrived at their

answers. These items are scored, according to an item-specific rubric, on a scale of 0 to 4 points.

### General Scoring Rubric for Grade 7 iLEAP Math Constructed-Response Items

<b>4</b>	The student's response demonstrates in-depth understanding of the relevant content and/or procedures. The student completes all important components of the task and communicates ideas effectively. Where appropriate, the student offers insightful interpretations and/or extensions. Where appropriate, the student uses more sophisticated reasoning and/or efficient procedures.
<b>3</b>	The student completes most important aspects of the task accurately and communicates clearly. The response demonstrates an understanding of major concepts and/or processes, although less important ideas or details may be overlooked or misunderstood. The student's logic and reasoning may contain minor flaws.
<b>2</b>	The student completes some parts of the task successfully. The response demonstrates gaps in the conceptual understanding.
<b>1</b>	The student completes only a small portion of the tasks and/or shows minimal understanding of the concepts and/or processes.
<b>0</b>	The student's response is incorrect, irrelevant, too brief to evaluate, or blank.

### Description of the Math Test and GLEs Assessed

The Math test was developed specifically for Louisiana. Committees of Louisiana educators reviewed all items for content and alignment with Louisiana's GLEs. Separate committees reviewed the items for potential bias and sensitive material.

The Math test is **untimed**. Suggested times are estimates for scheduling sessions and assisting students in managing their time.

Students are given a Mathematics Reference Sheet to consult as a reference. Calculators may be used on two parts of the test.

As Louisiana students and teachers transition to the CCSS ([http://www.doe.state.la.us/topics/common\\_core.html](http://www.doe.state.la.us/topics/common_core.html)) and PARCC assessments ([http://www.doe.state.la.us/topics/common\\_core\\_assessments.html](http://www.doe.state.la.us/topics/common_core_assessments.html)), the Math test will include only items measuring GLEs aligned to the CCSS. Table 2.2 provides a list of GLEs eligible for assessment during the transition. The table identifies the GLEs and the corresponding CCSS alignment. Some grade 7 GLEs align to CCSS at other grade levels but will continue to be taught and tested in grade 7 to decrease the possibility that the transition will create curricular gaps.

**Table 2.2: GLE Content to be Taught and Tested in 2012-13 and 2013-14**

<b>GLE #</b>	<b>Grade-Level Expectation Text</b>	<b>Aligned CCSS #</b>
1	Recognize and compute equivalent representations of fractions, decimals, and percents (i.e., halves, thirds, fourths, fifths, eighths, tenths, hundredths)	7.EE.3 7.NS.2
2	Compare positive fractions, decimals, percents, and integers using symbols (i.e., $<$ , $\leq$ , $=$ , $\geq$ , $>$ ) and position on a number line	Retained <sup>1</sup>
3	Solve order of operations problems involving grouping symbols and multiple operations	Retained <sup>1</sup>
5	Multiply and divide positive fractions and decimals	7.NS.2
7	Select and discuss appropriate operations and solve single- and multi-step, real-life problems involving positive fractions, percents, mixed numbers, decimals, and positive and negative integers	7.RP.3
8	Determine the reasonableness of answers involving positive fractions and decimals by comparing them to estimates	7.EE.3
10	Determine and apply rates and ratios	7.RP.1 7.RP.3
11	Use proportions involving whole numbers to solve real-life problems	7.RP.2 7.RP.3
12	Evaluate algebraic expressions containing exponents (especially 2 and 3) and square roots, using substitution	Retained <sup>1</sup>
16	Solve one- and two-step equations and inequalities (with one variable) in multiple ways	7.EE.4
18	Describe linear, multiplicative, or changing growth relationships (e.g., 1, 3, 6, 10, 15, 21,...) verbally and algebraically	7.RP.2
20	Determine the perimeter and area of composite plane figures by subdivision and area addition	7.G.6
24	Identify and draw angles (using protractors), circles, diameters, radii, altitudes, and 2-dimensional figures with given specifications	7.G.2
28	Determine the radius, diameter, circumference, and area of a circle and apply these measures in real-life problems	7.G.4
29	Plot points on a coordinate grid in all 4 quadrants and locate the coordinates of a missing vertex in a parallelogram	Retained <sup>1</sup>
37	Determine probability from experiments and from data displayed in tables and graphs	7.SP. 6 7.SP.7
38	Compare theoretical and experimental probability in real-life situations	7.SP.7

<sup>1</sup> This GLE was moved to another grade but will be taught and tested in this grade to decrease the possibility that the transition will create curricular gaps.

## Reporting Categories

To be more reflective of the focus areas of the CCSS at each grade, the GLEs available for assessment have been grouped into the Reporting Categories shown in Table 2.3. During the transition, the Reporting Categories replace the mathematics strands (e.g., Number and Number Relations, Algebra, etc.) for assessment purposes.

**Table 2.3: Grade 7 Math Reporting Categories**

Reporting Category	GLEs Covered
Ratio, Proportion, and Algebra	3, 10, 11, 12, 16, 18
Number System	1, 2, 5, 7, 8
Measurement, Data, and Geometry	20, 24, 28, 29, 37, 38

## Math Test Specifications

Table 2.4 provides test specifications for the multiple-choice parts of the grade 7 *iLEAP* Math assessment. The values in the table are approximations due to slight variations in the content across test forms at grade 7.

**Table 2.4: Grade 7 Math Test Specifications**

Reporting Category	Percentage of Total Points
Ratio, Proportion, and Algebra	60
Number System	25
Measurement, Data, and Geometry	15
<b>Total</b>	<b>100</b>

Sixty 1-point MC items plus two 4-point constructed-response items equals a 68-point test.

## **Calculator Recommendations and Restrictions**

It is recommended that a calculator be made available to **each** student for instructional and assessment purposes. As with all instructional materials, each individual district and school should determine which calculator best supports its mathematics curriculum and instructional program.

### **Calculators recommended for instruction and assessment:**

- K–4 students: four-function calculator
- 5–8 students: scientific calculator
- 9–12 students: scientific calculator with graphing capabilities

### **Calculators not permitted on statewide assessment:**

- handheld or laptop computers
- pocket organizers
- calculators with Computer Algebra Systems (CAS) or other symbolic manipulation capabilities
- calculators with paper tape
- calculators that talk or make noise
- calculators with QWERTY (typewriter-style) keypads
- electronic writing pads or pen input devices

## Sample Test Items: Grade 7 Math

### Sample Mathematics Constructed-Response Items and Scoring Rubrics

Questions 1 and 2 show sample constructed-response items. Each item involves a number of separate steps and the application of multiple skills. The constructed-response items are designed to assess one or more of the GLEs. The items are scored using an item-specific rubric on a scale of 0 to 4 points.

- 1** The table below shows the number of calories and grams of protein in different kinds of bagels sold at Barry’s Bagel Shop.

Type of Bagel	Calories	Grams of Protein
Plain	360	13 grams
Cinnamon and Raisin	360	12 grams
Egg	370	14 grams
Wheat	390	16 grams
Blueberry	370	11 grams
Onion	360	13 grams

- A** Kenyatta keeps track of her calories to grams of protein intake for nutritional purposes. What is the ratio of calories to grams of protein in the cinnamon and raisin bagels?
- B** Kenyatta bought 4 wheat bagels and 3 egg bagels. How many total calories are in the 7 bagels? Show your work.

- C** Rachel bought an onion bagel but ate only  $\frac{3}{4}$  of it. How many calories are in the portion of the bagel that Rachel ate? Show or explain how you found your answer.
- D** Barry wants to introduce a new high-protein bagel but wants to keep the ratio of calories to grams of protein the same as the egg bagel. If the new bagel has 21 grams of protein, how many calories will it have? Show or explain how you found your answer.

*Match to GLE: This item measures GLE 11: Use proportions involving whole numbers to solve real-life problems. This item also measures GLE 7: Select and discuss appropriate operations and solve single- and multi-step real-life problems involving positive fractions, percents, mixed numbers, decimals, and positive and negative integers. It also measures GLE 10: Determine and apply rates and ratios.*



Scoring Rubric	
<b>4</b>	The student earns 7 points.
<b>3</b>	The student earns 5 or 6 points.
<b>2</b>	The student earns 3 or 4 points.
<b>1</b>	The student earns 1 or 2 points. <b>OR</b> The student shows minimal understanding of equivalent representations of ratios and proportions.
<b>0</b>	The student's response is incorrect or irrelevant to the skill or concept being measured or is blank.
<b>Sample Answer:</b>	
<p>Part A. The ratio is <math>\frac{360}{12}</math> or <math>\frac{30}{1}</math>.</p> <p>Part B. This would be <math>4 \times 390 + 3 \times 370 = 1,560 + 1,110 = 2,670</math> calories.</p> <p>Part C. This would be <math>\frac{3}{4} = \frac{x}{360}</math>; <math>4x = 1,080</math>; <math>x = 270</math> calories.</p> <p><b>OR</b></p> <p><math>\frac{3}{4} \times 360 = 270</math> calories</p> <p>Part D. 555 calories. <math>\frac{14}{370} = \frac{21}{x}</math>; <math>(14)(x) = (21)(370)</math>; <math>14x = 7,770</math>; <math>x = 555</math>.</p>	
<b>Points Assigned:</b>	
<p>Part A. 1 point</p> <p>1 point for the correct ratio</p> <p>Part B. 2 points</p> <p>2 points for the correct answer with correct work shown</p> <p><b>OR</b></p> <p>1 point for the correct answer with no work or incorrect/incomplete work shown <b>OR</b> 1 point for an incorrect answer based on a minor arithmetic error with work shown</p> <p>Part C. 2 points</p> <p>2 points for the correct answer with correct work shown</p> <p><b>OR</b></p> <p>1 point for the correct answer with no work or incorrect/incomplete work shown <b>OR</b> 1 point for an incorrect answer based on a minor arithmetic error with work shown</p> <p>Part D. 2 points</p> <p>2 points for the correct answer with correct work shown</p> <p><b>OR</b></p> <p>1 point for the correct answer with no work or incorrect/incomplete work shown <b>OR</b> 1 point for an incorrect answer based on a minor arithmetic error with work shown</p>	

- 2** Henry is playing a game using a bag of tokens that contains exactly 28 black tokens and 12 white tokens. On each player's turn a single token is drawn at random from the bag and then returned to the bag at the end of the turn. Each token is the same size and shape. Henry recorded the first 10 draws as either black (B) or white (W) as shown below.

B, W, W, W, B, B, B, W, B, B

- A** Based on the information given, what is the theoretical probability of the next player drawing a white token?
- B** Based on the information given, what is the experimental probability of the next player drawing a white token?
- C** Henry says that by only decreasing the number of black tokens in the bag, the theoretical probability of drawing a white token can be made to equal the experimental probability of drawing a white token. How many black tokens should be removed for Henry's statement to be true?
- D** Henry uses the original bag of tokens that contains exactly 28 black tokens and 12 white tokens. He says that by only increasing the number of white tokens in the bag, the theoretical probability of drawing a white token can be made to equal the experimental probability of drawing a white token. Show or explain why Henry's statement is incorrect.

*Match to GLE: This item measures GLE 38: Compare theoretical and experimental probability in real-life situations.*

<b>Scoring Rubric</b>	
<b>4</b>	The student earns 4 points.
<b>3</b>	The student earns 3 points.
<b>2</b>	The student earns 2 points.
<b>1</b>	The student earns 1 point.
<b>0</b>	The student's response is incorrect or irrelevant to the skill or concept being measured or is blank.
<b>Sample Answer:</b>	
<p>Part A. <math>\frac{12}{40}</math> OR <math>\frac{6}{20}</math> OR <math>\frac{3}{10}</math> OR equivalent</p> <p>Part B. <math>\frac{4}{10}</math> OR <math>\frac{2}{5}</math> OR equivalent</p> <p>Part C. If you take out 10 black tokens, the theoretical probability of drawing a white token will be <math>\frac{12}{30} = \frac{4}{10}</math>, the same as the experimental probability.</p> <p>Part D. If you increase the number of white tokens by 6, you'll have 18 white tokens and a total of 46 tokens, so the theoretical probability will be <math>\frac{18}{46}</math>, or about 0.391, which is less than <math>\frac{2}{5}</math>. If you increase the number of white tokens by one more, you'll have a theoretical probability of <math>\frac{19}{47}</math>, or about 0.404, which is greater than <math>\frac{2}{5}</math>. So, there is no number of white tokens you can add to get exactly 0.4.</p>	
<b>Points Assigned:</b>	
<p>Part A: 1 point 1 point for determining the theoretical probability of drawing a white token</p> <p>Part B: 1 point 1 point for determining the experimental probability of drawing a white token</p> <p>Part C: 1 point 1 point for determining that 10 black tokens must be removed for Henry's statement to be true</p> <p>Part D: 1 point 1 point for showing that the number of white tokens cannot be increased by a whole number to result in the theoretical and experimental probabilities being equal</p>	

**Note:** Scorers should follow along with the student's work throughout. If student makes an error in a previous part and subsequent answers are correct based on the earlier error, student should not be penalized again.

### Sample Multiple-Choice Items

Questions 3 through 24 are sample multiple-choice items, arranged by GLE. The items test students' ability to solve math problems. Most items are provided in context and require students to use information from stories, graphs, or tables to solve a problem. Items may assess some of the skills of a GLE, while other items may measure all of the skills of the GLE.

**3**      **How should you write .02 as a percent?**

- A**      .02%
- B**      .20%
- C**      2.0%
- D**      20%

**Correct Response: C**

*Match to GLE: This item measures GLE 1: Recognize and compute equivalent representations of fractions, decimals, and percents (i.e., halves, thirds, fourths, fifths, eighths, tenths, hundredths).*

**4**      **Which fraction is greater than  $\frac{1}{6}$  but less than  $\frac{1}{3}$ ?**

- A**       $\frac{1}{9}$
- B**       $\frac{1}{2}$
- C**       $\frac{1}{4}$
- D**       $\frac{1}{8}$

**Correct Response: C**

*Match to GLE: This item measures GLE 2: Compare positive fractions, decimals, percents, and integers using symbols (i.e., <, ≤, =, ≥, >) and position on a number line.*

**5**      **What is the value of  $8 - 3 \times 2$ ?**

- A**      2
- B**      5
- C**      10
- D**      22

**Correct Response: A**

*Match to GLE: This item measures GLE 3: Solve order of operations problems involving grouping symbols and multiple operations.*

**6**      A district office printed surveys for each school in the district to distribute to its students. The office used  $3\frac{1}{2}$  reams of paper to print all of the surveys. Each school in the district received  $\frac{1}{4}$  of a ream of printed surveys. **How many schools are in the district?**

- A**      4
- B**      9
- C**      12
- D**      14

**Correct response: D**

*Match to GLE: This item measures GLE 5: Multiply and divide positive fractions and decimals.*

- 7** Snow Mountain has a snow-making machine that will lay down an inch of snow per hour over an area of 40,000 square feet. **Which expression shows how to find the number of hours this machine takes to lay down 1 inch of new snow on a ski run that is 800 feet long and 150 feet wide?**

**A** 
$$\frac{(800) \times (150)}{40,000}$$

**B** 
$$\frac{40,000}{(800) \times (150)}$$

**C** 
$$\frac{(150 \times 40,000)}{800}$$

**D** 
$$\frac{(800 \times 40,000)}{150}$$

**Correct Response: A**

*Match to GLE: This item measures GLE 7: Select and discuss appropriate operations and solve single- and multi-step real-life problems involving positive fractions, percents, mixed numbers, decimals, and positive and negative integers.*

- 8** There are 1,648 students at Central Middle School, and  $\frac{5}{8}$  of the students ride the bus to school. Matt estimates that about 1,000 students ride the bus. **Which statement correctly identifies whether Matt's estimate is reasonable and explains why?**
- A** No, because  $\frac{1}{8}$  of 1,600 is 200 and  $200 \div 5 = 40$ .
- B** No, because  $\frac{5}{8}$  is close to  $\frac{1}{2}$  and of 1,600 is 800.
- C** Yes, because  $\frac{1}{8}$  of 1,600 is 200 and  $200 \times 5 = 1,000$ .
- D** Yes, because  $\frac{5}{8} = 0.625$  and  $1,648 - 625$  is close to 1,000.

**Correct response: C**

*Match to GLE: This item measures GLE 8: Determine the reasonableness of answers involving positive fractions and decimals by comparing them to estimates.*

- 9** The dimensions of four rectangles are given below. **Which rectangle does not have the same ratio of length to width as the other three?**
- A** 14 inches  $\times$  10 inches
- B**  $3\frac{1}{2}$  inches  $\times$   $2\frac{1}{2}$  inches
- C** 7 inches  $\times$  5 inches
- D**  $4\frac{1}{2}$  inches  $\times$   $2\frac{3}{4}$  inches

**Correct Response: D**

*Match to GLE: This item measures GLE 10: Determine and apply rates and ratios.*

- 10** Mr. Rogers bought a small motorboat. Traveling at a speed of 20 miles per hour, he could go 50 miles on a 6-gallon tank of fuel. **At that rate, how many gallons of fuel would he need for a 75-mile trip?**

- A**  $7\frac{1}{2}$
- B** 9
- C** 12
- D** 20

**Correct Response: B**

*Match to GLE: This item measures GLE 11: Use proportions involving whole numbers to solve real-life problems.*



- 11** A recipe for strawberry jam calls for 2 cups of sugar for every 3 quarts of strawberries. **Using the same recipe, how many cups of sugar are needed for 24 quarts of strawberries?**

**A** 4 cups  
**B** 8 cups  
**C** 16 cups  
**D** 36 cups

**Correct response: C**

*Match to GLE: This item measures GLE 11: Use proportions involving whole numbers to solve real-life problems.*

- 12** The length of the longest side of a right triangle can be found by using the expression  $\sqrt{a^2 + b^2}$ , where  $a$  and  $b$  are the lengths of the two other sides. **If  $a = 6$  and  $b = 8$ , what is the length of the longest side?**

**A** 10  
**B** 48  
**C** 40  
**D** 100

**Correct response: A**

*Match to GLE: This item measures GLE 12: Evaluate algebraic expressions containing exponents (especially 2 and 3) and square roots, using substitution.*

**Directions:** Use the expression below to answer question 13.

$$2(4.2 + 1.8)^x$$

**13** What is the value of the expression when  $x = 3$ ?

- A** 14.232
- B** 432
- C** 1,061.208
- D** 1,728

**Correct response: B**

*Match to GLE: This item measures GLE 12: Evaluate algebraic expressions containing exponents (especially 2 and 3) and square roots, using substitution.*

**14** Lori plans to go to the mall to buy earrings, which cost \$7 a pair. She has \$25 but wants to save \$4 for lunch. Lori needs to determine how many pairs of earrings,  $x$ , she can buy, so she uses the equation  $7x + 4 = 25$ . **How many pairs of earrings can Lori buy?**

- A** 2 pairs
- B** 3 pairs
- C** 4 pairs
- D** 5 pairs

**Correct response: B**

*Match to GLE: This item measures GLE 16: Solve one- and two-step equations and inequalities (with one variable) in multiple ways.*

- 15** A phone company uses the equation below to determine  $t$ , a customer's total monthly bill, when  $m$  minutes are used.

$$t = 0.1m + 16.75$$

Alex's total bill was \$50.75. **How many minutes,  $m$ , did Alex use?**

- A** 22
- B** 34
- C** 340
- D** 675

**Correct response: C**

*Match to GLE: This item measures GLE 16: Solve one- and two-step equations and inequalities (with one variable) in multiple ways.*

- 16** Pat collects seashells. During week one he collected 2 seashells. During week two he collected 5 seashells. During week three he collected 8 seashells. During week four he collected 11 seashells. **If  $w$  is the week number, which expression can be used to find the number of seashells Pat collected each week?**

- A**  $2.5w$
- B**  $2w + 3$
- C**  $2w$
- D**  $3w - 1$

**Correct response: D**

*Match to GLE: This item measures GLE 18: Describe linear, multiplicative, or changing growth relationships (e.g., 1, 3, 6, 10, 15, 21, . . .) verbally and algebraically.*

- 17** Felix measures the height of a plant and finds that it grows 2 inches every 5 days. Which equation models the height ( $h$ ), in inches, of a plant that has been growing for  $d$  days?

**A**  $h = \frac{2}{5}d$

**B**  $h = \frac{5}{2}d$

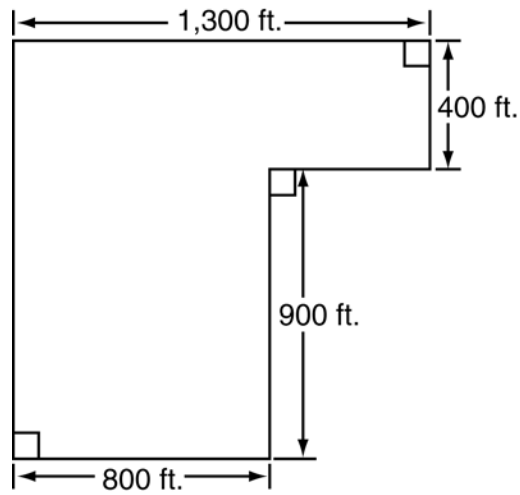
**C**  $h = 2d + 5$

**D**  $h = 5d + 2$

**Correct response: A**

*Match to GLE: This item measures GLE 18: Describe linear, multiplicative, or changing growth relationships (e.g., 1, 3, 6, 10, 15, 21, . . .) verbally and algebraically.*

- 18** Brian likes to go bird-watching along the Harvest Park Trail in a nearby forest preserve. He wants to calculate the area enclosed by the trail, shown below.



**Based on the diagram, what is the area of the land enclosed by the trail?**

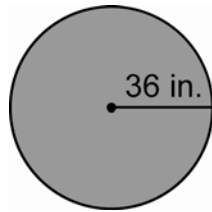
- A** 1,690,000 sq. ft.
- B** 1,240,000 sq. ft.
- C** 5,200 sq. ft.
- D** 2,600 sq. ft.

**Correct response: B**

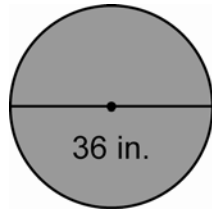
*Match to GLE: This item measures GLE 20: Determine the perimeter and area of composite plane figures by subdivision and area addition.*

- 19** Rocky's Tunnel Company makes tunnels for playgrounds. Each tunnel has a circular opening with a diameter of 36 in. **Which diagram shows a tunnel opening with a diameter of 36 in.?**

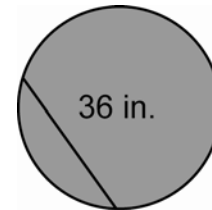
**A**



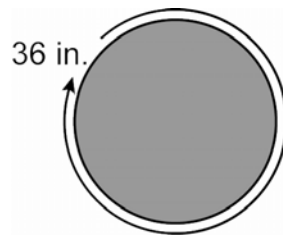
**B**



**C**



**D**



**Correct response: B**

*Match to GLE: This item measures GLE 24: Identify and draw angles (using protractors), circles, diameters, radii, altitudes, and two-dimensional figures with given specifications.*

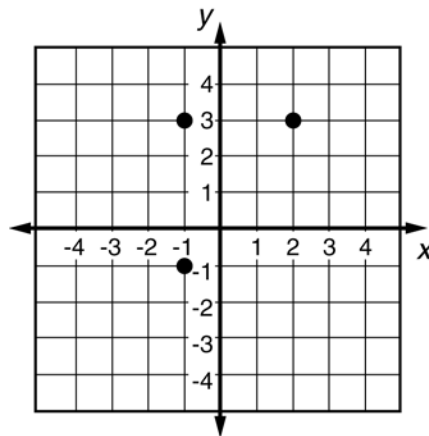
- 20** Alex buys a basketball. He reads on its packaging that the basketball has a circumference of 30 inches. **What is the approximate diameter of the basketball?**

**A** 3.0 inches  
**B** 4.75 inches  
**C** 6.0 inches  
**D** 9.5 inches

**Correct response: D**

*Match to GLE: This item measures GLE 28: Determine the radius, diameter, circumference, and area of a circle and apply these measures in real-life problems.*

- 21** Reena placed her rectangular notebook on a coordinate grid and drew points where three of the notebook's corners rested.



**What are the coordinates of the location of the notebook's fourth corner?**

**A** (2, -1)  
**B** (-1, 2)  
**C** (-2, 2)  
**D** (-2, -1)

**Correct response: A**

*Match to GLE: This item measures GLE 29: Plot points on a coordinate grid in all 4 quadrants and locate the coordinates of a missing vertex in a parallelogram.*

- 22** A baker sells donuts. In the last hour he sold 16 donuts with sprinkles, 8 donuts with nuts, and 12 donuts with coconut. **Based on the last 36 donuts purchased, what is the probability that the next donut sold will have sprinkles?**

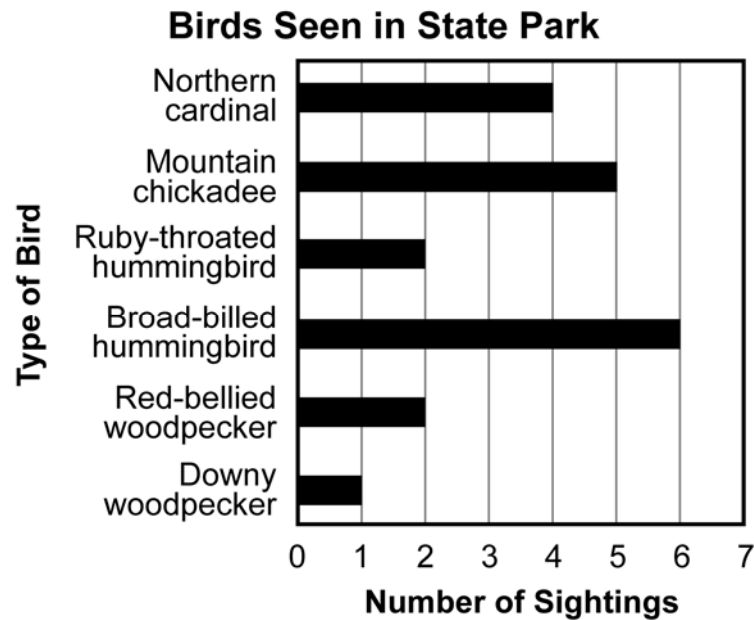
- A**  $\frac{1}{3}$
- B**  $\frac{4}{9}$
- C**  $\frac{16}{20}$
- D**  $\frac{5}{6}$

**Correct response: B**

*Match to GLE: This item measures GLE 37: Determine probability from experiments and from data displayed in tables and graphs.*



- 23** Ranger Goya is recording the numbers of sightings of different types of birds he sees in the state park in the graph below.



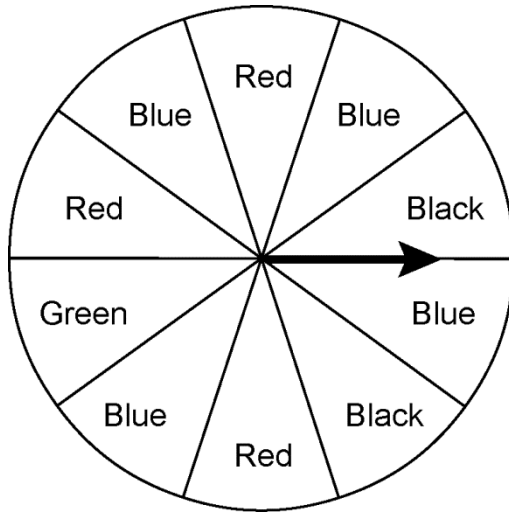
Based on these results, what is the probability that the next type of bird Ranger Goya sees is a type of hummingbird?

- A**  $\frac{1}{6}$
- B**  $\frac{1}{3}$
- C**  $\frac{2}{5}$
- D**  $\frac{2}{3}$

**Correct response: C**

*Match to GLE: This item measures GLE 37: Determine probability from experiments and from data displayed in tables and graphs.*

- 24** The spinner below is used in a carnival game. The table shows the actual numbers of times the spinner landed on different colors after being spun 40 times.



**Spinner Results**

Color	Number of Spins
black	8
blue	12
green	10
red	10

**Which color has the same theoretical and experimental probability of the spinner landing on it?**

- A** black
- B** blue
- C** green
- D** red

**Correct response: A**

*Match to GLE: This item measures GLE 38: Compare theoretical and experimental probability in real-life situations.*

