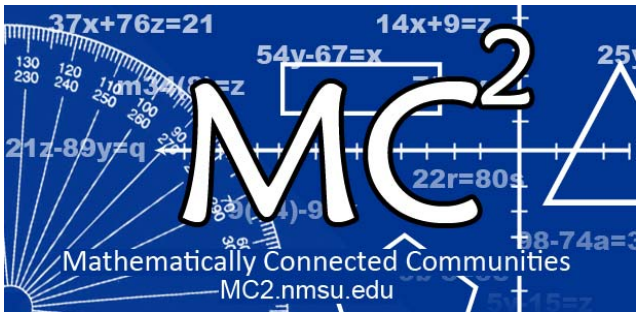
Mathematically
Connected Communities



PARCC EOY Practice Test Items
7th Grade Mathematics

Excerpted 11/2014 from
PARCC Online Practice Tests
www.parcconline.org

Mathematical Practice Questions for MC^2 Thinking Protocol

Follow the process below in working with the PARCC practice items found in this packet:

1. Choose items from this packet that relate to math concepts studied in the current or previous curriculum units during your math instruction. Each item may be used as a practice item worksheet.
2. Choose a set of **Thinking/Writing Prompts** below based on the math practice the class is working to develop.
3. Add the prompts to the practice item worksheet or display the prompts for the students to respond to.
4. Continue using the same set of prompts for an extended period of time so children develop competence and confidence in describing their mathematical thinking related to the math practice.

The questions below were intentionally not included on each MC^2 PARCC practice item worksheet in this packet. These are intended to help students move beyond "answer getting" to fully making sense of test item questions and their own mathematical thinking.

Thinking/Writing Prompts to Promote Mathematical Practices

Math Practice 1: **Make sense of problems and persevere in solving them.**

1. What do you know about the problem?
2. What questions do you have?
3. Explain your reasoning or thinking in solving the problem.

Math Practice 3: **Construct viable arguments and critique the reasoning of others.**

1. What are the assumptions, definitions, and previous knowledge to help in thinking about this problem?
2. What are some possible conjectures that you have about the problem?
3. Explain your mathematical argument so that somebody else can make sense of your thinking.

Math Practice 4: **Model with mathematics.**

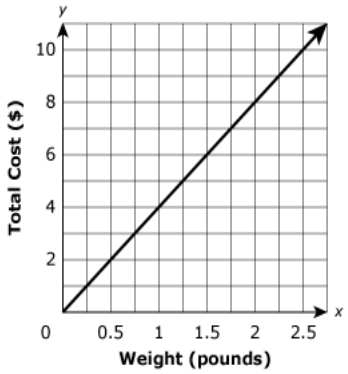
1. What are the important quantities in the problem that are needed to solve it?
2. What mathematical operation(s) or representation(s) will you use to solve the problem?
3. Explain how you know your answer makes sense in the context of the situation.

Math Practice 6: **Attend to precision.**

1. What are the important units in the problem? (What are we measuring or counting?)
2. What relationship between the units/quantities do you need to know in order to solve the problem?
3. Use appropriate and precise mathematical language, units, labels and computations to clearly describe your mathematical reasoning.

7th Grade PARCC EOY Practice Assessment Item #1, Standard 7.RP.2d

This graph shows the relationship between the pounds of cheese bought at a deli and the total cost, in dollars, for the cheese.



Select **each** statement about the graph that is true. Select **all** that apply.

- A. The point $(0, 0)$ shows the cost is \$0.00 for 0 pounds of cheese.
- B. The point $(0.25, 1)$ shows the cost is \$0.25 for 1 pound of cheese.
- C. The point $(0.5, 2)$ shows that 0.5 pound of cheese costs \$2.00.
- D. The point $(1, 4)$ shows the cost is \$4.00 for 1 pound of cheese.
- E. The point $(2, 8)$ shows that 8 pounds of cheese cost \$2.00.

7th Grade PARCC EOY Practice Assessment Item #2, Standard 7.EE.1

Which expressions are equivalent to $-2.5(1-2n)-1.5n$?

Select all that apply.

- A. $-2.5-3.5n$
- B. $-2.5+3.5n$
- C. $-2.5-6.5n$
- D. $-2.5-n(5-1.5)$
- E. $-2.5+n(5-1.5)$

7th Grade PARCC EOY Practice Assessment Item #3, Standard 7.RP.2b

This table shows a proportional relationship between x and y.

x	y
2	1.25
4	2.5
6	3.75
10	6.25

What is the constant of proportionality between x and y ? Enter your answer as a decimal.

7th Grade PARCC EOY Practice Assessment Item #4, Standard 7.NS.2b-1

Which expressions are equivalent to $\frac{-5}{19}$?

Select **each** correct answer.

- [ ] A. $\frac{5}{19}$
- [ ] B. $-\frac{5}{19}$
- [ ] C. $\frac{-5}{-19}$
- [ ] D. $\frac{5}{-19}$
- [ ] E. $-\left(\frac{5}{19}\right)$
- [ ] F. $-\left(-\frac{5}{19}\right)$

7th Grade PARCC EOY Practice Assessment Item #5, Standard 7.EE.4a-1

Devon exercised the same amount of time each day for 5 days last week.

- His exercise included walking and swimming.
- Each day he exercised, he walked for 10 minutes.
- He exercised for a total of 225 minutes last week.

What is the number of minutes Devon swam each of the 5 days last week?

Enter your answer in the box.

_____ minutes

7th Grade PARCC EOY Practice Assessment Item #7, Standard 7.EE.4a-1

Jessica rented 1 video game and 3 movies for a total of $11.50.

- The video game cost $4.75 to rent.
- The movies cost the same amount each to rent.

What amount did Jessica pay to rent each movie?

Enter your answer in the box.

$

7th Grade PARCC EOY Practice Assessment Item #8, Standard 7.NS.3

At the start of the month, the value of an investment was $\$48.45$. By the end of the month, the value of the investment changed by a loss of $\$13.80$.

What was the value, in dollars, of the investment at the end of the month? Enter your answer in the box.

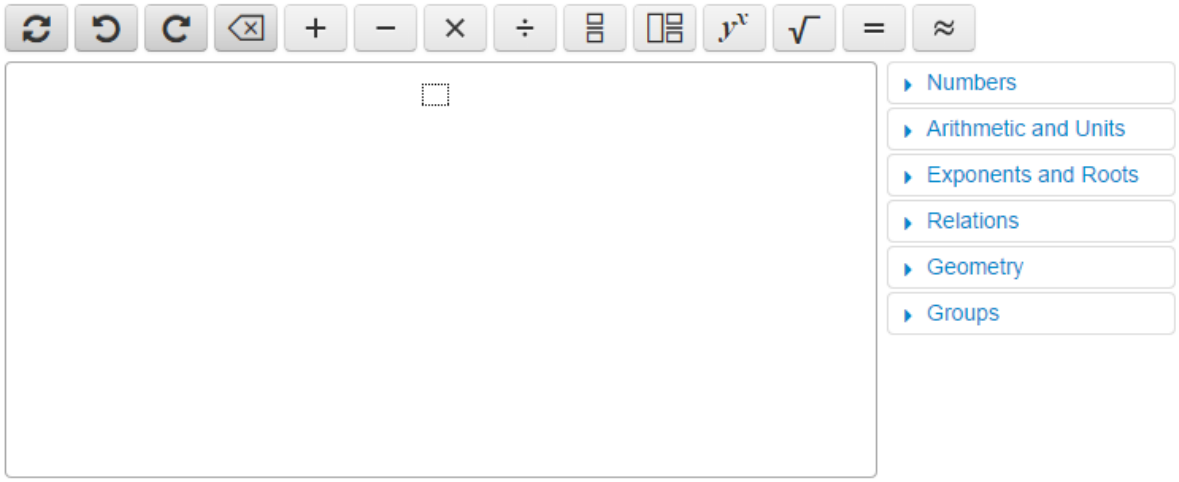
$

7th Grade PARCC EOY Practice Assessment Item #9, Standard 7.RP.2c

Hayden mixed 6 cups of blue paint with 8 cups of yellow paint to make green paint.

Write an equation that shows the relationship between the number of cups of blue paint, b, and the number of cups of yellow paint, y, that are needed to create the same shade of green paint. The equation should be in the form $b = ky$.

Enter your answer in the space provided. Enter **only** your equation.



7th Grade PARCC EOY Practice Assessment Item #10, Standard 7.NS.2b-2

In which situation could the quotient of $-24 \div 3$ be used to answer the question?

A. The temperature of a substance decreased by 24° per minute for 3 minutes. What was the overall change of the temperature of the substance?

B. A football team loses 24 yards on one play, then gains 3 yards on the next play. How many total yards did the team gain on the two plays?

C. Julia withdrew a total of $24 from her bank account over 3 days. She withdrew the same amount each day. By how much did the amount in her bank account change each day?

D. A cookie jar contains 24 cookies. Each child receives 3 cookies. How many children are there?

7th Grade PARCC EOY Practice Assessment Item #11, Standard 7.EE.4a-2

Two equations are shown.

Equation 1: $\frac{2}{3}\left(x-6\right)=6$

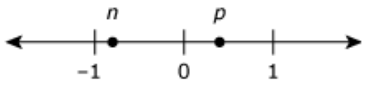
Equation 2: $\frac{2}{3}y-6=6$

Solve each equation. Then, enter a number in each box to make this statement true.

The value of x is _____ , and the value of y is _____ .

7th Grade PARCC EOY Practice Assessment Item #12, Standard 7.NS.1b-1

Two numbers, n and p are plotted on the number line shown.



The numbers $n - p$, $n + p$, and $p - n$ will be plotted on the number line.

Select an expression from each drop-down menu to make this statement true.

The number with the least value is Choose... , and the number with the greatest value is Choose... .

7th Grade PARCC EOY Practice Assessment Item #13, Standard 7.EE.2

A garden is 15-feet long by 5-feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden:

$(x+15)+(x+5)+(x+15)+(x+5)$

Which expression is equivalent to the expression for the perimeter of the larger garden?

Select **all** that apply.

- A. $4x+40$
- B. $2(2x+20)$
- C. $2(x+15)(x+5)$
- D. $4(x+15)(x+5)$
- E. $2(x+15)+2(x+5)$

7th Grade PARCC EOY Practice Assessment Item #14, Standard 7.NS.1c-1

Which expressions are equivalent to $3\frac{1}{4} - \left(-\frac{5}{8}\right)$?

Select **all** that apply.

- ☐ A. $3\frac{1}{4} - \left(\frac{5}{8}\right)$
- ☐ B. $3\frac{1}{4} + \left(\frac{5}{8}\right)$
- ☐ C. $3\frac{1}{4} + \left(-\frac{5}{8}\right)$
- ☐ D. $3\frac{1}{4} + \left(+\frac{5}{8}\right)$
- ☐ E. $-3\frac{1}{4} + \left(-\frac{5}{8}\right)$
- ☐ F. $-3\frac{1}{4} + \left(+\frac{5}{8}\right)$

7th Grade PARCC EOY Practice Assessment Item #15, Standard 7.EE.1

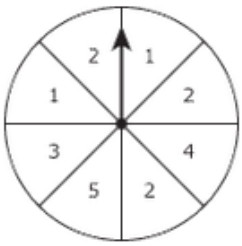
Which expressions are a factor of $-48xyz - 24xy + 40xyz$?

Select all that apply.

- A. 4
- B. 24
- C. $3x$
- D. $8y$
- E. $2xy$
- F. $6xy$
- G. xyz

7th Grade PARCC EOY Practice Assessment Item #1 (Part 2: Calculator), Standard 7.SP.7a

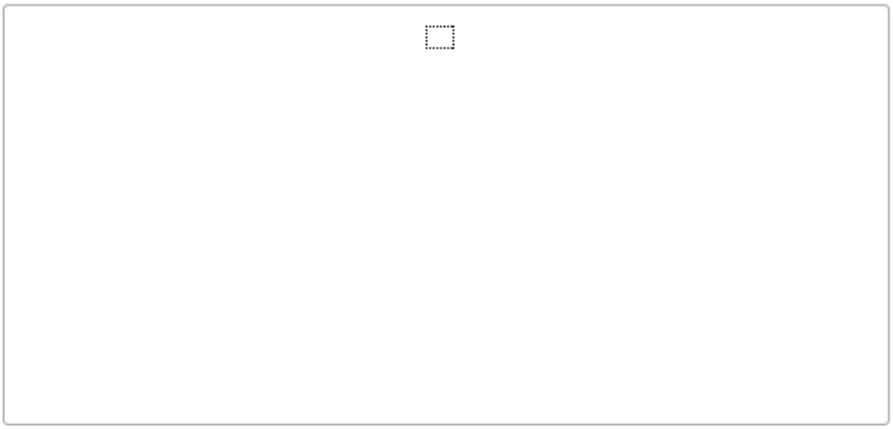
The spinner shown is divided into 8 equal sections.



The arrow on this spinner is spun once.

What is the probability that the arrow will land on a section labeled with a number **greater** than 3?

Enter your answer in the space provided. Enter **only** your fraction.



- Numbers
- Arithmetic and Units
- Exponents and Roots
- Relations
- Geometry
- Groups

7th Grade PARCC EOY Practice Assessment Item #2 (Part 2: Calculator), Standard 7.G.1

The scale on a map shows that 5 centimeters = 2 kilometers.

Part A

What number of centimeters on the map represents an actual distance of 5 kilometers?

Enter your answer in the box.

_____ centimeter(s)

Part B

What is the actual number of kilometers that is represented by 2 centimeters on the map?

Enter your answer in the box.

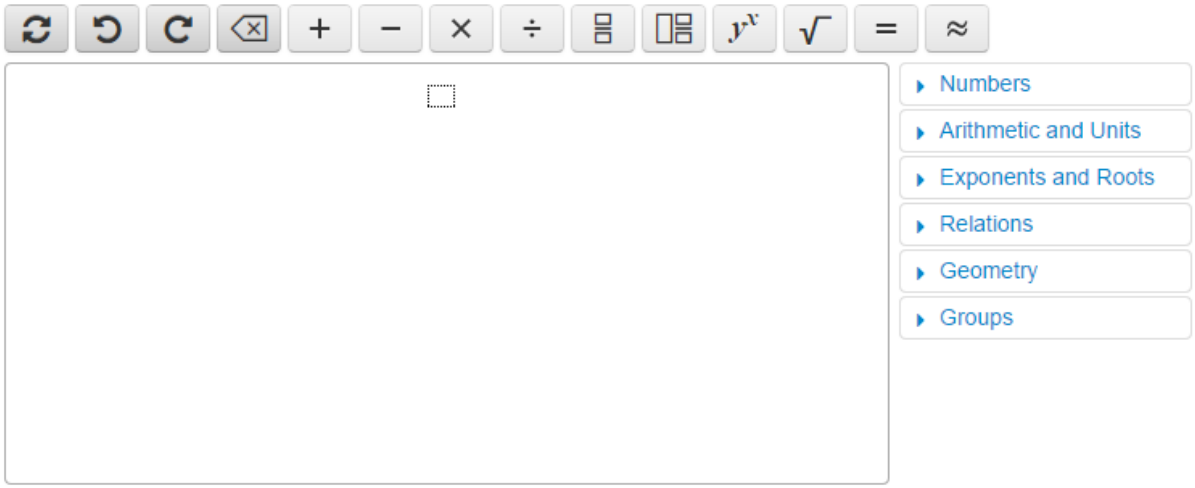
_____ kilometer(s)

7th Grade PARCC EOY Practice Assessment Item #4 (Part 2: Calculator), Standard 7.RP.1

Rosy waxes $\frac{2}{3}$ of her car with $\frac{1}{4}$ bottle of car wax.

At this rate, what fraction of the bottle of car wax will Rosy use to wax her entire car?

Enter your answer in the space provided. Enter **only** your fraction.



7th Grade PARCC EOY Practice Assessment Item #5 (Part 2: Calculator), Standard 7.G.4-1

A circular mirror has a diameter of 12 inches.

Part A

What is the area, in square inches, of the mirror?

- A. 6π
- B. 12π
- C. 36π
- D. 72π

Part B

A circular frame that is 3-inches wide surrounds the mirror.

What is the combined area, in square inches, of the circular mirror and the frame?

- A. 9π
- B. 18π
- C. 54π
- D. 81π

7th Grade PARCC EOY Practice Assessment Item #6 (Part 2: Calculator), Standard 7.RP.3-2

The students in Naomi's class sold calendars for a fund-raiser this year and last year.

This year, the selling price of each calendar was $13.25.

The price this year represents 6% more than the selling price of each calendar last year.

Part A

What was the selling price of each calendar last year ?

Enter your answer in the box.

$ _____

Part B

The students in Naomi's class earned 20% of the selling price of each calendar sold this year and last year.

- At last year's selling price, Naomi's class sold 650 calendars.
- At this year's selling price, Naomi's class sold 600 calendars.

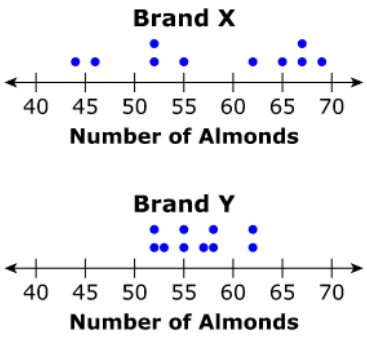
Select a choice from each drop-down menu to make this statement true.

The students in Naomi's class earned more money from the fund-raiser

Choose... / last year / this year by Choose... / $20 / $25 / $35 / $50 / $60 .

7th Grade PARCC EOY Practice Assessment Item #7 (Part 2: Calculator), Standard 7.SP.4

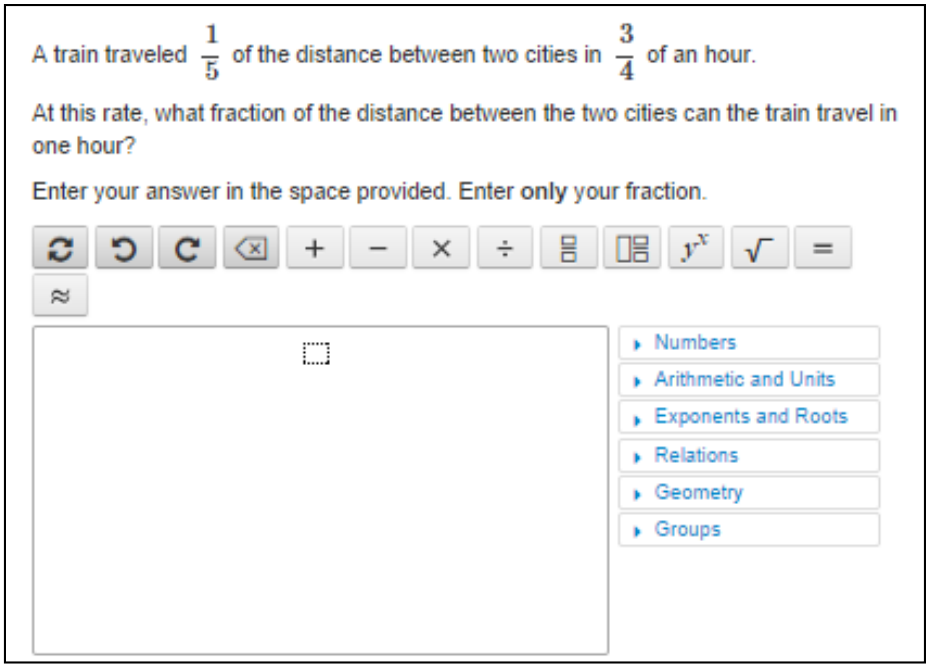
Alexis chose a random sample of 10 jars of almonds from each of two different brands, X and Y. Each jar in the sample was the same size. She counted the number of almonds in each jar. Her results are shown in the plots.



Based on the plots, which statement **best** compares the number of almonds in the jars from the two brands?

- A. The number of almonds in jars from Brand X tends to be greater and more consistent than those from Brand Y.
- B. The number of almonds in jars from Brand X tends to be greater and less consistent than those from Brand Y.
- C. The number of almonds in jars from Brand X tends to be fewer and more consistent than those from Brand Y.
- D. The number of almonds in jars from Brand X tends to be fewer and less consistent than those from Brand Y.

7th Grade PARCC EOY Practice Assessment Item #8 (Part 2: Calculator), Standard 7.RP.1



7th Grade PARCC EOY Practice Assessment Item #9 (Part 2: Calculator), Standard 7.EE.3

A train traveled $\frac{1}{5}$ of the distance between two cities in $\frac{3}{4}$ of an hour.

At this rate, what fraction of the distance between the two cities can the train travel in one hour?

Enter your answer in the space provided. Enter **only** your fraction.

- Numbers
- Arithmetic and Units
- Exponents and Roots
- Relations
- Geometry
- Groups

7th Grade PARCC EOY Practice Assessment Item #10 (Part 2: Calculator), Standard 7.RP.3-2

A store owner paid $15 for a book. She marked up the price of the book by 40% to determine its selling price.

Part A

What is the selling price of the book?

Enter your answer in the box.

$ _____

Part B

A customer buys a different book that has an original selling price of $38. The book is discounted 25%. The customer must pay a 6% sales tax on the discounted price of the book.

What is the total amount the customer pays for the discounted book?

Enter your answer in the box.

$ _____

7th Grade PARCC EOY Practice Assessment Item #11 (Part 2: Calculator), Standard 7.G.3

Misha has a cube and a right-square pyramid that are made of clay. She placed both clay figures on a flat surface.

Select each box in the table that identifies the two-dimensional-plane sections that **could** result from a vertical or horizontal slice through each clay figure.

Clay Figure	Cube	Right-Square Pyramid
Triangle	☐	☐
Square	☐	☐
Rectangle That Is Not a Square	☐	☐

7th Grade PARCC EOY Practice Assessment Item #12 (Part 2: Calculator), Standard 7.RP.3-1

The directions on a bottle of vinegar say, "mix 1 cup of vinegar with 1 gallon of water to make a cleaning solution." The ratio of vinegar to water is 1 to 16.

Part A

How many **cups** of water should be mixed with $\frac{1}{4}$ cup of vinegar to make the cleaning solution?

Enter your answer in the box.

_____ cups

Part B

How many **fluid ounces** of vinegar should be mixed with 80-fluid ounces of water to make the cleaning solution?

Enter your answer in the box.

_____ ounces

Part C

The bottle contains 1 quart of vinegar.

What is the **total number of quarts of cleaning solution** that can be made using the entire bottle of vinegar?

Enter your answer in the box.

_____ quarts of cleaning solution

7th Grade PARCC EOY Practice Assessment Item #13 (Part 2: Calculator), Standard 7.SP.1

Josephine owns a diner that is open every day for breakfast, lunch, and dinner. She offers a regular menu and a menu with specials for each of the three meals. She wanted to estimate the percentage of her customers that order from the menu with specials. She selected a random sample of 50 customers who had lunch at her diner during a three-month period. She determined that 28% of these people ordered from the menu with specials.

Which statement about Josephine's sample is true?

A. The sample is the percentage of customers who order from the menu with specials.

B. The sample might not be representative of the population because it only included lunch customers.

C. The sample shows that exactly 28% of Josephine's customers order from the menu with specials.

D. No generalizations can be made from this sample, because the sample size of 50 is too small.

7th Grade PARCC EOY Practice Assessment Item #14 (Part 2: Calculator), Standard 7.EE.3

Today, Joelle walked 20 minutes at a rate of 3 miles per hour, and she ran 15 minutes at a rate of 6 miles per hour.

Part A

How many total miles did Joelle travel while walking and running?

Enter your answer in the box.

_____ miles

Part B

Tomorrow, Joelle wants to travel a total of 4 miles by walking and running. She plans to run for 20 minutes at a rate of 6 miles per hour.

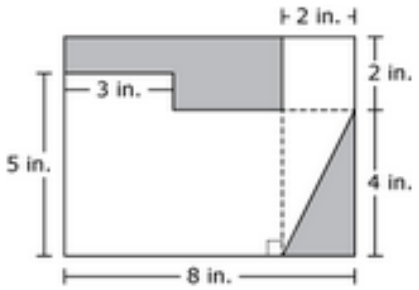
How many **minutes** should she walk at a rate of 3 miles per hour to finish traveling the 4 miles?

Enter your answer in the box.

_____ minutes

7th Grade PARCC EOY Practice Assessment Item #16 (Part 2: Calculator), Standard 7.G.6

This figure shows two shaded regions and a non-shaded region. Angles in the figure that appear to be right angles are right angles.



Part A

What is the area, in square inches, of the triangular-shaped region that is shaded in this figure?

Enter your answer in the box.

_____ square inches

Part B

What is the area, in square inches, of the non-shaded region in this figure?

Enter your answer in the box.

_____ square inches

7th Grade PARCC EOY Practice Assessment Item #16 (Part 2: Calculator), Standard 7.SP.6

Reagan will use a random number generator 1,200 times. Each result will be a digit from 1 to 6. Which statement **best** predicts how many times the digit 5 will appear among the 1,200 results?

- A. It will appear exactly 200 times.
- B. It will appear close to 200 times but probably not exactly 200 times.
- C. It will appear exactly 240 times.
- D. It will appear close to 240 times but probably not exactly 240 times.