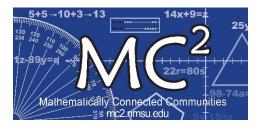
Mathematically Connected Communities



PARCC Practice Test Items Grade 6 Mathematics

Excerpted 10/2016 from
PARCC Paper-Based and Computer-Based
Practice Tests*

https://parcc.pearson.com/practice-tests/math/

*Note PARCC Computer-Based Practices test items are located at the end of each unit and are not numbered sequentially.

Mathematical Practice Questions for MC² Thinking Protocol

Use the MC² Thinking Protocol and follow the process below in working with the PARCC practice test items found in this packet:

- 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 MC² PARCC practice test 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.

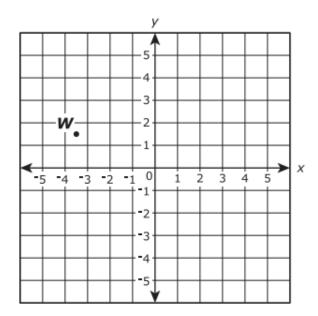
Math Practice 6: Attend to precision.

- 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.

- **1.** A class of 25 students shares a class set of 100 markers. On a day with 5 students absent, which statement is true?
 - A. For every 5 students, there is 1 marker.
 - B. For every 4 students, there is 1 marker.
 - **C.** For each student, there are 4 markers.
 - **D.** For each student, there are 5 markers.

- 2. The area of a rectangular patio is $5\frac{5}{8}$ square yards, and its length is $1\frac{1}{2}$ yards. What is the patio's width, in yards?
 - **A.** $3\frac{3}{4}$
 - **B.** $4\frac{1}{8}$
 - **C.** $7\frac{1}{8}$
 - **D.** $8\frac{7}{16}$

3. This coordinate plane shows the location of point W.



What is the value of the x-coordinate of point W? Enter your answer as a decimal to the nearest 0.5.

Enter your answer in the box.

4. Enter your answer in the box.

33.8 ÷ 32.5

5. Which equations with exponential expressions are true?
Select all that apply.

A.
$$3^3 = 3.3$$

B.
$$5^2 = 5.5$$

C.
$$5^4 = 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$$

D.
$$7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 6^7$$

E.
$$7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^6$$

F.
$$7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^7$$

6. Enter your answer in the box.

34,992 ÷ 81

6th Grade PARCC Unit 1 Practice Test Item #7 (Non-Calculator): Standard 6.NS.7a

7. These five rational numbers are plotted on a horizontal number line.

$$-\frac{2}{3}$$
, $\frac{7}{8}$, $-\frac{4}{5}$, $\frac{7}{10}$, $-\frac{4}{3}$

Which statement about the locations on the number line of the rational numbers is true?

- **A.** $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.
- **B.** $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.
- **C.** $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.
- **D.** $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.

6th Grade PARCC Unit 1 Practice Test Item #8 (Non-Calculator): Standard 6.NS.4-1

8. What is the greatest common factor of 16 and 48?
Enter your answer in the box.

9. Select each expression that is equivalent to 3(n + 6).

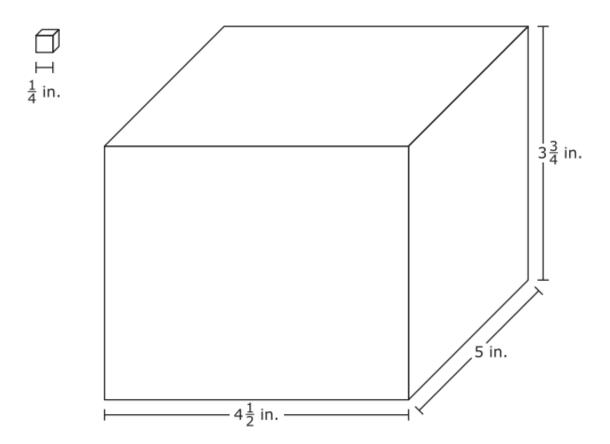
Select all that apply.

- **A.** 3n + 6
- **B.** 3n + 18
- **C.** 2n + 2 + n + 4
- **D.** 2(n+6)+(n+6)
- **E.** 2(n+6)+n

10. What is the sum of 74.835 and 2.67? Enter your answer in the box.

6th Grade PARCC Unit 1 Practice Test Item #11 (Non-Calculator): Standard 6.G.2-1

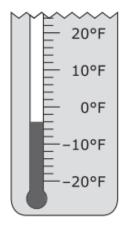
11. Small cubes with edge lengths of $\frac{1}{4}$ inch will be packed into the right rectangular prism shown.



How many small cubes are needed to completely fill the right rectangular prism?

Enter your answer in the box.

12. The picture shows part of a thermometer measuring temperature in degrees Fahrenheit.



What is the temperature, in degrees Fahrenheit, shown on the thermometer to the nearest integer?

Enter your integer answer in the box.

6th Grade PARCC Unit 1 Practice Test Item #13 (Non-Calculator): Standard 6.EE.6

- **13.** Marshall took \$36.75 to a fair. Each ticket into the fair costs *x* dollars. Marshall bought 3 tickets. Which expression represents the amount of money, in dollars, that Marshall had after he bought the tickets?
 - **A.** 36.75 (3 + x)
 - **B.** 36.75x 3
 - **C.** 36.75(3) x
 - **D.** 36.75 3x

6th Grade PARCC Unit 1 Practice Test Item #14 (Non-Calculator): Standard 6.SP.1

- **14.** Which question is a statistical question?
 - A. How tall is the oak tree?
 - **B.** How much did the tree grow in one year?
 - C. What are the heights of the oak trees in the schoolyard?
 - **D.** What is the difference in height between the oak tree and the pine tree?

15. Joanne buys a rectangular rug with an area of $\frac{35}{4}$ square meters. The length of the rug is $\frac{7}{2}$ meters.

What is the width, in meters, of the rug?

- **A.** $\frac{5}{8}$
- **B.** $\frac{7}{8}$
- **c.** $\frac{5}{2}$
- **D.** $\frac{7}{2}$

6th Grade PARCC Unit 1 Practice Test Item #16 (Non-Calculator): Standard 6.Int.1

16. Thomas buys a case of bottled water. A case contains 36 bottles of water and costs \$4.69. Thomas will sell each bottle of water for \$0.75 at a school event.

How much profit, in dollars, will Thomas earn if he sells all the bottles of water?

Enter your answer in the box.

17. Three values on a number line are labeled f, g, and h.

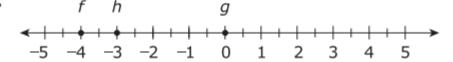
$$f = -4$$

$$g = -g$$

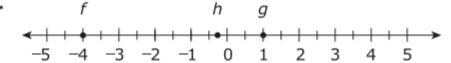
$$h = -f$$

Which number line correctly shows the values of f, g, and h?

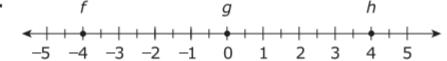
A.



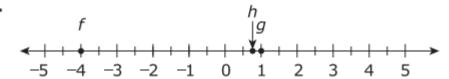
В.



C.



D.



6th Grade PARCC Unit 1 Practice Test Item #18 (Non-Calculator): Standard 6.SP.3

18. The median number of points scored by 9 players in a basketball game is 12. The range of the numbers of points scored by the same basketball players in the same game is 7.

Which statement is true based on the given information?

- A. At least one player scored 12 points.
- **B.** The greatest number of points scored is less than 19 points.
- **C.** The mean number of points scored is greater than 12 points.
- D. If the greatest number of points scored is 16, then the least number of points scored is 4.

<u>6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #1 (Non-Calculator):</u> Standard 6.RP.1

This table shows the numbers of books, by type, checked out from the school library on Monday.

Book Checkout

Book Type	Number of Books
mystery	24
nonfiction	18
adventure	12
humor	16

Use the drop-down menu	us to complete the statement.	
For every Choose	mystery books checked out, Choose	nonfiction books were
checked out.		
2	2	
3	3	
4	4	
6	6	

6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #5 (Non-Calculator): Standard 6. EE.8

Cirrus clouds form more than 6,000 meters above Earth. Write an inequality to represent h, the height, in meters, of cirrus clouds.

Enter your answer in the space provided. Enter only your inequality.



6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #7 (Non-Calculator): Standard 6.NS.8

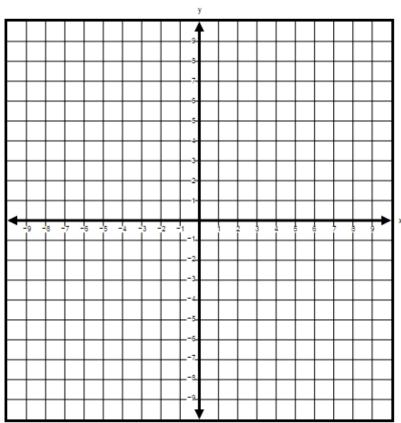
City planners are creating a neighborhood map on a coordinate grid. The table shows the locations of the neighborhood library and school on a coordinate grid.

Neighborhood Planning

Building	Location	
library	(-4, -6)	
school	(5, -6)	

In this coordinate grid, the distance between each gridline represents 1 mile. What is the distance, in miles, between the library and the school?

You can use the coordinate grid to help you find the answer by plotting the two points. Be sure to place your final answer in the box.



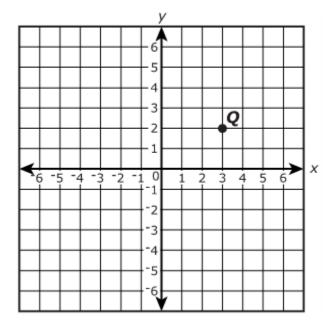
Enter your	answer in the box.
	miles

6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #15 (Non-Calculator): Standard 6.NS.1-2

Carol makes $9\frac{1}{3}$ cups of snack mix. She puts all the snack mix into plastic bags. She puts snack mix in each bag.	$\frac{2}{3}$ cup of the
How many plastic bags does Carol need?	
Enter your answer in the box.	
plastic bags	

6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #17 (Non-Calculator): Standard 6.NS.6b-2

Point Q is plotted on the coordinate plane.



Point Q is reflected across the x-axis.

What are the coordinates of the reflection of point Q?

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



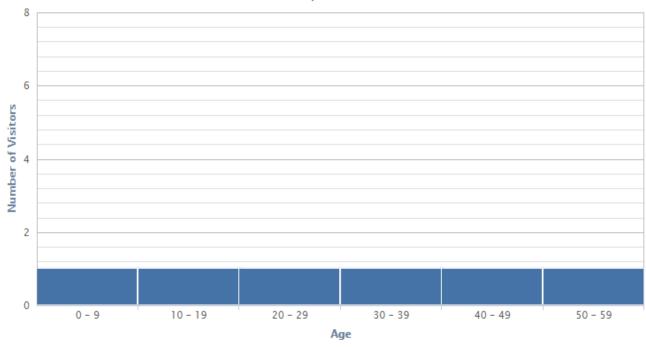
6th Grade PARCC Unit 1 COMPUTER-BASED Practice Test Item #18 (Non-Calculator): Standard 6.SP.4

This table shows the ages of 20 visitors at a library.

15	27	53	9	48
3	56	12	10	15
18	15	2	31	20
21	33	6	52	56

Create a histogram that represents the data. Adjust the size of the slider by dragging the top of the slider to the appropriate height.

Library Visitors





6th Grade PARCC Unit 2 Practice Test Item #19 (Calculator): Standard 6.EE.2a

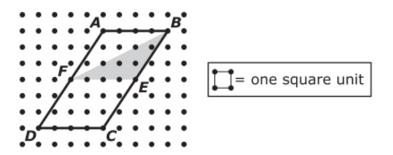
- **19.** Which expression represents "6 more than x"?
 - **A.** x 6
 - **B.** 6•*x*
 - **C.** x + 6
 - **D.** 6 *x*



6th Grade PARCC Unit 2 Practice Test Item #20 (Calculator): Standard 6.G.1

Use the information provided to answer Part A and Part B for question 20.

An advertising company is designing a new logo that consists of a shaded triangle inside a parallelogram.



20. Part A

What is the area, in square units, of parallelogram *ABCD*? Enter your answer in the box.

Part B

In the new logo, what fraction of the parallelogram is shaded?

- **A.** $\frac{1}{12}$
- **B.** $\frac{1}{6}$
- **C.** $\frac{1}{4}$
- **D.** $\frac{1}{3}$



6th Grade PARCC Unit 2 Practice Test Item #21 (Calculator): Standards 6.C.7, 6.EE.4

21. Brianna's teacher asks her which of these three expressions are equivalent to each other.

Expression A: 9x - 3x - 4

Expression B: 12x - 4

Expression C: 5x + x - 4

Brianna says that all three expressions are equivalent because the value of each one is -4 when x = 0.

Brianna's thinking is incorrect.

- · Identify the error in Brianna's thinking.
- Determine which of the three expressions are equivalent.
- Explain or show your process in determining which expressions are equivalent.

Enter your answers and your explanation or process in the space provided.



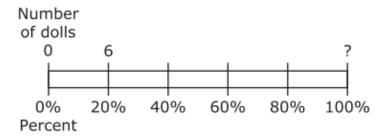
6th Grade PARCC Unit 2 Practice Test Item #22 (Calculator): Standard 6.EE.5-2

22. Let x represent any number in the set of even integers greater than 1.

Which inequality is true for all values of x?

- **A.** x < 0
- **B.** x > 0
- **C.** x < 4
- **D.** x > 4

23. Anita brings 6 dolls to her grandma's house. These dolls represent 20% of Anita's doll collection, as shown in the diagram.



What is the total number of dolls in Anita's doll collection?

Enter your answer in the box.



24. A company makes yellow golf balls and white golf balls. The table shows the company's sales of yellow golf balls for the last 3 years.

Yellow Golf Balls

Year	Number of Yellow Golf Balls Sold
1	204,132
2	225,624
3	237,108

- The company expects sales of yellow golf balls to continue to increase in year 4.
- The company also expects the ratio of yellow golf ball sales to white golf ball sales in year 4 to be about 1:5.
- The average selling price of a box of 12 yellow or 12 white golf balls is \$23.94.

Estimate the company's total sales, in dollars, of golf balls in year 4. Show all your work. Explain how you determined your estimate.

Enter your estimate, your work, and your explanation in the space provided.



6th Grade PARCC Unit 2 Practice Test Item #25 (Calculator): Standard 6.EE.2c-1

25. What is the value of $a^2 + 3b \div c - 2d$, when a = 3, b = 8, c = 2, and d = 5? Enter your answer in the box.



6th Grade PARCC Unit 2 Practice Test Item #26 (Calculator): Standard 6.RP.3b

Use the information provided to answer Part A through Part D for question 26.

Chad drove 168 miles in 3 hours.

26. Part A

How many miles per hour did Chad drive?

Enter your answer in the box.

Part B

Chad will drive 672 more miles. He continues to drive at the same rate.

How many hours will it take Chad to drive the 672 miles?

Enter your answer in the box.

Part C

Chad stopped and filled the car with 11 gallons of gas. He had driven 308 miles using the previous 11 gallons of gas.

How many miles per gallon did Chad's car get?

Enter your answer in the box.

Part D

Chad's car continues to get the same number of miles per gallon.

How many gallons of gas will Chad's car use to travel 672 miles?

Enter your answer in the box.



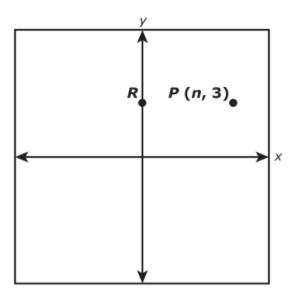
6th Grade PARCC Unit 2 Practice Test Item #27 (Calculator): Standard 6.RP.3d

- 27. There are 5,280 feet in 1 mile. How many inches are in 2 miles?
 - **A.** 10,560
 - **B.** 63,360
 - **C.** 126,720
 - **D.** 253,440



6th Grade PARCC Unit 2 Practice Test Item #28 (Calculator): Standards 6.C.5, 6.NS.8

28. The graph shows the location of point P and point R. Point R is on the y-axis and has the same y-coordinate as point P.



Point Q is graphed at $(n, \bar{\ }2)$. The distance from point P to point Q is equal to the distance from point P to point R.

What is the distance from point P to point Q? What is the value of n? Explain how you determined the distance from point P to point Q, and the value of n.

Enter your answers and your explanations in the space provided.



6th Grade PARCC Unit 2 Practice Test Item #29 (Calculator): Standard 6.RP.3a

Use the information provided to answer Part A and Part B for question 29.

The ratio of the sales tax to the amount of a purchase is a fixed number in Town Q. The table shows the sales tax for a purchase of \$1,200.

Town Q Tax

Purchase	Sales Tax
\$1,200	\$72
\$2,500	?
?	\$108

29. Part A

What is the sales tax for a purchase of \$2,500?

- A. \$18.06
- **B.** \$34.72
- **C.** \$144.00
- **D.** \$150.00

Part B

What is the cost of an item with a sales tax of \$108?

- **A.** \$432
- **B.** \$648
- **C.** \$1,092
- **D.** \$1,800



6th Grade PARCC Unit 2 COMPUTER-BASED Practice Test Item #1 (Calculator): Standard 6.EE.2a

Which expressions represent "the sum of 3 and n"?

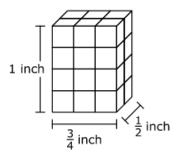
Select all that apply.

- □ A. 3n
- \blacksquare B. n+3
- \square C. 3+n
- \square D. n+n+n
- \blacksquare E. n^3



6th Grade PARCC Unit 2 COMPUTER-BASED Practice Test Item #2 (Calculator): Standard 6.G.2-2

This right rectangular prism is built with small cubes.



Part A

What is the volume, in cubic inches, of the right rectangular prism?

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



Part B

What is the volume, in cubic inches, of 1 of the small cubes?

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





6th Grade PARCC Unit 2 COMPUTER-BASED Practice Test Item #9 (Calculator): Standard 6.RP.3d

Hank bought 5 meters of ribbon for \$4.

Use the drop-down menus to complete the sentence.

The ribbon costs	Choose	 per	Choose	_•
	\$.008		millimeter	
	\$.08		centimeter	
	\$.80		kilometer	



6th Grade PARCC Unit 2 COMPUTER-BASED Practice Test Item #11 (Calculator): Standard 6.EE.9

A school band performed a concert on four different days. The band sold tickets and snacks each day of the concert for a fundraiser. The first table shows the numbers of tickets sold and the amounts of money collected from ticket sales. The second table shows the numbers of snacks sold and the amounts of money collected from snack sales.

Concert Ticket Sales

Day	Number of Tickets Sold	Amount Collected (dollars)
1	50	275.00
2	47	258.50
3	62	341.00
4	75	412.50

Snack Sales

Day	Number of Snacks Sold	Amount Collected (dollars)
1	43	53.75
2	36	45.00
3	60	75.00
4	65	81.25



6th Grade PARCC Unit 2 COMPUTER-BASED Practice Test Item #11 (Calculator): Standard 6.EE.9 (continued)

Part A

If each snack costs the same price, what is the price per snack?

Enter your answer in the box.



Part B

Write an equation that can be used to find y, the amount of money collected for selling x concert tickets.

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





6th Grade PARCC Unit 3 Practice Test Item #30 (Calculator): Standard 6.EE.6

30. During a sale, all pillows are $\frac{1}{4}$ off the regular price.

Which expression shows the amount of money saved on a pillow that had a regular price of *d* dollars?

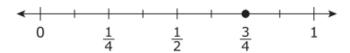
- A. d ÷ 4
- **B.** $d \times 4$
- **C.** d + 4
- **D.** d 4



6th Grade PARCC Unit 3 Practice Test Item #31 (Calculator): Standards 6.C.3, 6.NS.1

Use the information provided to answer Part A and Part B for question 31.

This diagram shows a number line.



31. Part A

James has a board that is $\frac{3}{4}$ foot long. He wants to cut the board into pieces that are each $\frac{1}{8}$ foot long.

How many pieces can James cut from the board? Explain how James can use the number line diagram to determine the number of pieces he can cut from the board.

Enter your answer and your explanation in the space provided.

Part B

Write an equation using division that represents how James can find the number of pieces he can cut from the board.

Enter your equation in the space provided.



6th Grade PARCC Unit 3 Practice Test Item #32 (Calculator): Standard 6.EE.7

Use the information provided to answer Part A and Part B for question 32.

Greg bought 4 notebooks for \$6.40.

32. Part A

Which equation can be used to determine the price, p, in dollars, of 1 notebook?

A.
$$\frac{p}{4} = 6.40$$

B.
$$\frac{p}{6.40} = 4$$

C.
$$4p = 6.40$$

D.
$$6.40p = 4$$

Part B

What is the price, in dollars, of 1 notebook?



33. Part A

A group of hikers buys 8 bags of mixed nuts. Each bag contains $3\frac{1}{2}$ cups of mixed nuts. The mixed nuts are shared evenly among 12 hikers. How many cups of mixed nuts will each hiker receive? Show your work or explain your answer.

Enter your answer and your work or explanation in the space provided.

Part B

The hikers plan to visit a scenic lookout. They will rest after they hike 2 miles. Then they will hike the remaining $1\frac{3}{4}$ miles to the lookout. The trail the hikers will use to return from the lookout is $\frac{1}{2}$ mile shorter than the trail they will use to go to the lookout. Each hiker will bring $\frac{1}{4}$ gallon of water for each mile to and from the lookout.

- Determine the total distance, in miles, each hiker will hike. Show your work or explain your answer.
- Determine the total number of gallons of water each hiker will bring. Show your work or explain your answer.

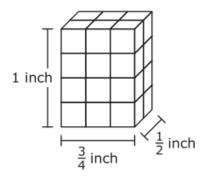
Enter your answers and your work or explanations in the space provided.



6th Grade PARCC Unit 3 Practice Test Item #34 (Calculator): Standard 6.G.2-2

Use the information provided to answer Part A and Part B for question 34.

This right rectangular prism is built with small cubes.



34. Part A

What is the volume, in cubic inch(es), of the right rectangular prism?

- **A.** $\frac{3}{8}$
- **B.** $\frac{2}{3}$
- **c.** $1\frac{2}{3}$
- **D.** $2\frac{1}{4}$

Part B

What is the volume, in cubic inch(es), of 1 of the small cubes?

- **A.** $\frac{1}{64}$
- **B.** $\frac{1}{16}$
- **c.** $\frac{9}{16}$
- **D.** $\frac{3}{8}$

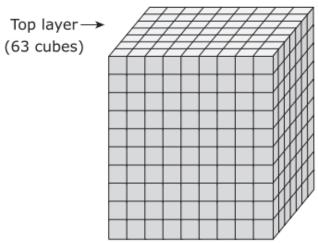


6th Grade PARCC Unit 3 Practice Test Item #35 (Calculator): Standards 6.C.9, 5.MD.5

Use the information provided to answer Part A and Part B for question 35.

A student filled a right rectangular prism-shaped box with one inch cubes to find the volume, in cubic inches. The student's work is shown.





Student's Work

- I packed my box full of cubes. Each cube has a volume of 1 cubic inch.
- I counted 63 cubes in the top layer.
- Since there are 9 layers of cubes below the top layer, I solved 63 x 9 = 567. So there are 567 cubes.
- The volume of my box is 567 cubic inches.

35. Part A

Explain why the student's reasoning is incorrect. Provide the correct volume, in cubic inches, of the box.

Enter your explanation and the correct volume in the space provided.



6th Grade PARCC Unit 3 Practice Test Item #35 (Calculator): Standards 6.C.9, 5.MD.5 (continued)

Part B

A second box also has a base area of 63 square inches, but it has a volume of 756 cubic inches.

What is the height, in inches, of the second box? Explain or show how you determined the height.

Enter the height and your explanation or work in the space provided.



6th Grade PARCC Unit 3 Practice Test Item #36 (Calculator): Standard 6.RP.3c-2

Use the information provided to answer Part A and Part B for question 36.

The number of blueberry muffins that a baker makes each day is 40% of the total number of muffins she makes.

36. Part A

On Monday, the baker makes 36 blueberry muffins.

What is the total number of muffins that the baker makes on Monday?

Enter your answer in the box.

Part B

On Tuesday, the baker makes a total of 60 muffins.

How many blueberry muffins does the baker make on Tuesday?



6th Grade PARCC Unit 3 Practice Test Item #37 (Calculator): Standards 6.D.1, 6.RP.2, 6.RP.3

- **37.** Sam's two new aquariums each hold exactly 200 gallons of water. One aquarium will hold small fish and the other will hold large fish. Now he needs new fish for his aquariums.
 - He will buy 5 small fish for every 10 gallons of water in the aquarium.
 - He will buy 8 large fish for every 40 gallons of water in the aquarium.

What is the total number of fish Sam will have? What will be the ratio of Sam's small fish to large fish? Show or explain the steps you used to solve this problem.

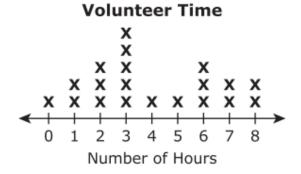
Enter your answers and your work or explanation in the space provided.



6th Grade PARCC Unit 3 Practice Test Item #38 (Calculator): Standard 6.SP.5

Use the information provided to answer Part A and Part B for question 38.

Janet surveyed a class of students. She recorded the number of hours that each student volunteered. This line plot shows the results of the survey.



38. Part A

How many students did Janet survey?

Enter your answer in the box.

Part B

What is the mean number of hours volunteered by the students in the survey?



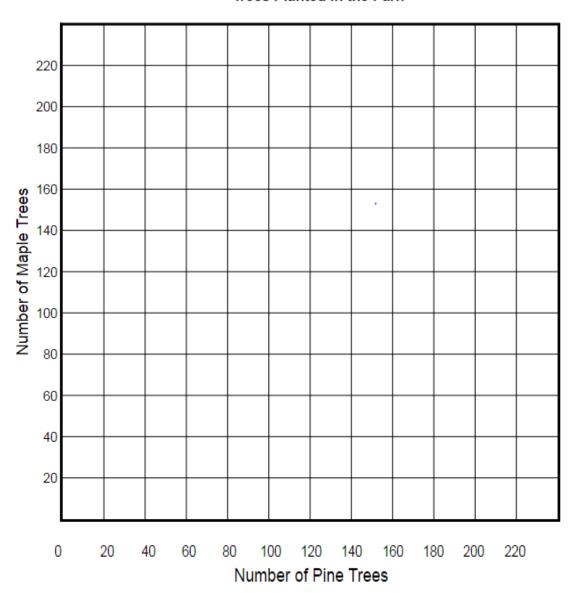
6th Grade PARCC Unit 3 COMPUTER-BASED Practice Test Item #1 (Calculator): Standard 6.RP.3a

A total of 300 trees will be planted in a park. There will be 2 pine trees planted for every 3 maple trees planted.

Plot the point that represents the number of pine trees and the number of maple trees that will be planted.

Select the place on the coordinate plane to plot the point.







6th Grade PARCC Unit 3 COMPUTER-BASED Practice Test Item #3 (Calculator): Standard 6.EE.7

Kellie bought 8 towels and spent \$39.60. Each towel costs the same amount.

Part A

Use the drop-down menus to create an equation that can be used to determine t, the price, in dollars, of 1 towel.

t	Choose	▼ Choose	▼ = Choose	•
	+	8	8	
	-	39.60	39.60	
	X			
	÷			

Part B

What is the price, in dollars, of 1 towel?