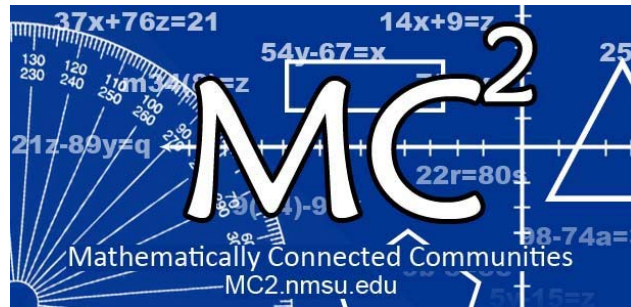


Mathematically Connected Communities



PARCC PBA Practice Test Items 5th Grade Math

Excerpted 1/2015 from
PARCC Online Practice Tests
www.parcconline.org

Mathematical Practice Questions for MC² 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 MC² 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.

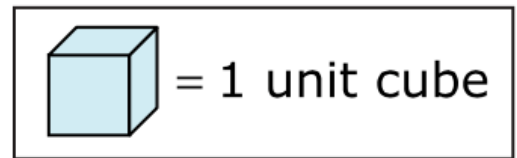
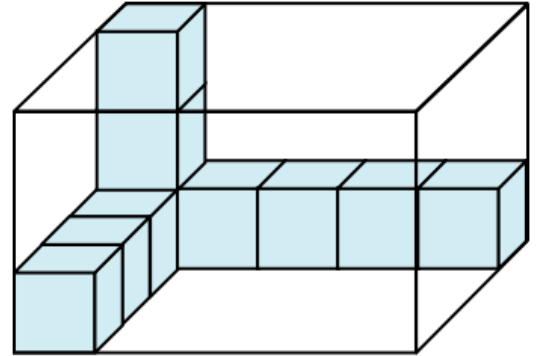
Math Practice 4: Model with mathematics.

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.

1. What is the volume of the rectangular prism in cubic units?



Enter your answer in the box.

2. Which of these are equal to 83.041?

Select the **two** correct answers.

- A. eighty-three and forty-one tenths
- B. $8 \times 10 + 3 \times 1 + 4 \times \frac{1}{10} + 1 \times \frac{1}{100}$
- C. eighty-three and forty-one hundredths
- D. $8 \times 10 + 3 \times 1 + 4 \times \frac{1}{100} + 1 \times \frac{1}{1,000}$
- E. eighty-three and forty-one thousandths

3. Select from the drop-down menus to correctly complete each comparison.

4.408 four and forty-eight thousandths

<
=
>

six hundred ninety-one and five hundredths

$$6 \times 100 + 9 \times 10 + 1 \times 1 + 8 \times \frac{1}{1,000}$$

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=
>

4. Diana works at a clothing store. She sold $\frac{1}{5}$ of the total number of green shirts on Monday and $\frac{3}{12}$ of the total number of green shirts on Tuesday.
















What fraction of green shirts did Diana sell on Monday and Tuesday?

What fraction of green shirts did Diana **not** sell on Monday and Tuesday?

Enter your answers in the space provided. Enter **only** your answers.

Fraction of green shirts sold Monday and Tuesday :

Fraction of green shirt **not** sold Monday and Tuesday :

5. For a family gathering, Brittany made 5 meat loaves using 9 pounds of ground beef. She also made 14 hamburgers using 4 pounds of ground beef.

Part A

Each meat loaf was made with the same amount of ground beef.

Which of these is closest to the amount of ground beef in each meat loaf?

- A. $\frac{1}{2}$ pound
- B. 1 pound
- C. $1\frac{1}{2}$ pounds
- D. 2 pounds

Exhibits

Formula Chart

Assessment Reference Sheet

Grade 5

1 mile = 5280 feet
1 mile = 1760 yards

1 pound = 16 ounces
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 liter = 1000 cubic centimeters

Right Rectangular Prism

$V = B \times h$ or $V = l \times w \times h$

5. **Part B**

Each hamburger was made with the same amount of ground beef.

Which of these is closest to the amount of ground beef in each hamburger?

- A. $\frac{1}{2}$ pound
- B. $\frac{1}{4}$ pound
- C. $\frac{3}{4}$ pound
- D. 1 pound

6. What fraction completes the equation using a like denominator when adding $\frac{1}{3} + \frac{3}{6}$?

Drag and drop each correct number into the appropriate box.

$$\frac{1}{3} + \frac{3}{6} = \frac{\boxed{}}{\boxed{}} + \frac{3}{6}$$

1	2	4	6	12	18
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5th Grade PARCC PBA Sample Item #7: Standard 5.NF.4 and 5.NF.6 Evidence Statement: 5.D.1

7. An egg farm packages 264 total cartons of eggs each month. The farm has 3 different sizes of cartons.
- The small carton holds 8 eggs, and $\frac{1}{6}$ of the total cartons are small.
 - The medium carton holds 12 eggs, and $\frac{2}{3}$ of the total cartons are medium.
 - The large carton holds 18 eggs, and the rest of the total cartons are large.

Determine how many of each size of carton is needed each month. Then determine how many eggs are needed to fill the 264 cartons. Show your work or explain your answers.

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



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(·)	[·]
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5th Grade PARCC PBA Sample Item #8-A: Standard 4.NF.2 Evidence Statement 5.C.7

8. Nick measured two crickets in science class. The lengths of the two crickets are shown.

- Cricket A: $\frac{3}{8}$ inch
- Cricket B: $\frac{5}{8}$ inch

The science teacher asked Nick to compare the length of each cricket to $\frac{1}{2}$ inch.

Part A

Nick claims that the length of each cricket is greater than $\frac{1}{2}$ because the numerator of each cricket length is greater than the numerator in $\frac{1}{2}$.

Compare $\frac{1}{2}$ inch to the length of each cricket using the $>$, $<$, or $=$ symbol. Then explain whether Nick's reasoning is correct.

Enter your comparisons and your explanation in the space provided.

← → 🗑️

▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(·)	[·]
=	<	>	≠
\$	°	?	

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Right Rectangular Prism | $V = B \times h$ or $V = l \times w \times h$

8. Part B

Nick recorded the distance each cricket jumped.

- Distance for cricket A: $1 \frac{3}{4}$ feet
- Distance for cricket B: $3 \frac{2}{4}$ feet

Nick claims that cricket B jumped $2 \frac{1}{4}$ feet farther than cricket A because the difference between the whole numbers is 2 and the difference between the numerators is 1.

- Explain why Nick's reasoning is incorrect.
- What is the correct difference, in feet, between the distance cricket A jumped and the distance cricket B jumped?

Enter your explanation and your answer in the space provided.

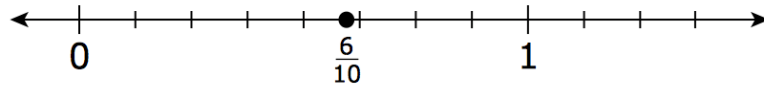


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=	<	>	≠
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5th Grade PARCC PBA Sample Item #9: Standard 5.NF.2 Evidence Statement 5.C.5

9. On Saturday, Craig rode his bike $\frac{5}{8}$ of a mile. On Sunday, he rode his bike $\frac{1}{2}$ of a mile. Craig added $\frac{5}{8}$ and $\frac{1}{2}$ to find the total distance, in miles, he rode his bike on the two days. Craig said $\frac{5}{8} + \frac{1}{2} = \frac{6}{10}$ and plotted $\frac{6}{10}$ on this number line.



- Explain why Craig’s answer is not reasonable.
- Find the total distance, in miles, Craig rode on his bike on Saturday and Sunday.
- Explain how to use the number line to show your answer is correct.

Enter your answer and explanations in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(·)	[·]
=	<	>	≠
\$	°	?	

10. Which statement describes $\frac{3}{8} \times \frac{4}{9}$?

- A. $\frac{3}{8} \times \frac{4}{9}$ is 3 groups of $\frac{4}{9}$, divided into 8 equal parts.
- B. $\frac{3}{8} \times \frac{4}{9}$ is 8 groups of $\frac{4}{9}$, divided into 3 equal parts.
- C. $\frac{3}{8} \times \frac{4}{9}$ is 3 groups of $\frac{4}{9}$, divided into 72 equal parts.
- D. $\frac{3}{8} \times \frac{4}{9}$ is 8 groups of $\frac{4}{9}$, divided into 12 equal parts.

11. Which expression is equal to $\frac{7}{8}$?

A. $8 - 7$

B. 7×8

C. $\frac{8}{7}$

D. $7 \div 8$

12. Part A

The numbers shown are written using numerals, base-ten numerals, or expanded form.

Drag and drop each number into the correct box.

One Million Twenty-Three Thousand

One Thousand Twenty-Three

1.023×10^3	1,023,000
1,023	$1 \times 1,000 + 2 \times 10 + 3 \times 1$
$1,023 \times 10^3$	$1 \times 1,000,000 + 2 \times 10,000 + 3 \times 1,000$

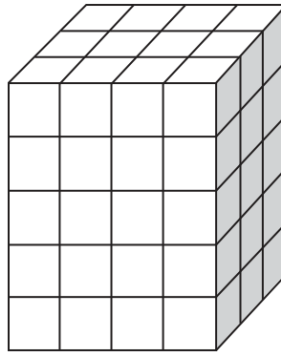
12. **Part B**

Which numbers show 1,034.17 rounded correctly to different place values?

Select the **three** correct answers.

- A. 1,000
- B. 1,030
- C. 1,035
- D. 1,100
- E. 1,034.1
- F. 1,034.2

13. In this right rectangular prism, each small cube measures 1 unit on each side.



- What is the volume of the prism?
- Explain how you found the volume. You may show your work in your explanation.
- What would be the dimensions of a new right rectangular prism that has 20 fewer unit cubes than the original prism?
- Explain how you determined the dimensions of the new right rectangular prism.

Enter your answers and your explanations in the space provided.



▼ Math symbols

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$\frac{\square}{\square}$	$\square \frac{\square}{\square}$	(\cdot)	[\cdot]
=	<	>	≠
\$	°	?	

14. Shannon is building a rectangular garden that is 18 feet wide and 27 feet long.

Part A

Write an equation that represents the area of Shannon's garden. In your equation, let g represent the area of Shannon's garden. Then solve your equation.

Enter your equation and your solution in the space provided.



Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(·)	[·]
=	<	>	≠
\$	°	?	

Exhibits x

Formula Chart

Assessment Reference Sheet

Grade 5

- | | | |
|---------------------|---------------------|----------------------------------|
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| | | 1 quart = 2 pints |
| | | 1 gallon = 4 quarts |
| | | 1 liter = 1000 cubic centimeters |

Right Rectangular Prism	$V = B \times h$ or $V = l \times w \times h$
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14. **Part B**

Shannon is putting a fence around the garden, except where there is a gate that is 3 feet wide.

One foot of the fence costs \$43. The cost of the gate is \$128.

Write an expression that represents the total cost of the fence and the gate.

Explain how you determined your expression.

Enter your expression and your explanation in the space provided.



▼ Math symbols

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$\frac{\square}{\square}$	$\frac{\square}{\square}$	(·)	[·]
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14. **Part C**

Use your expression from Part B to find the total cost, in dollars, of the fence and the gate.

Enter your answer in the space provided.

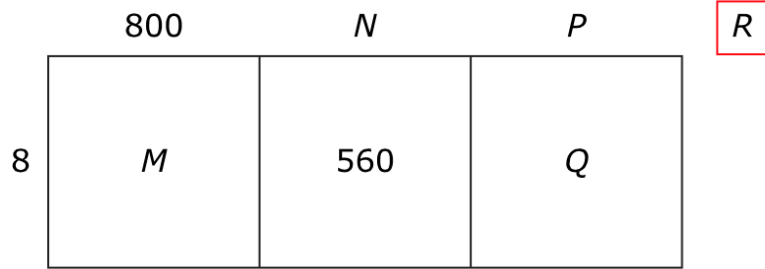


▼ Math symbols

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$\frac{\square}{\square}$	$\square \frac{\square}{\square}$	(·)	[·]
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15. A teacher drew an area model to find the value of $6,986 \div 8$.

Teacher's Model for $6,986 \div 8$



not to scale

- Determine the number that each letter in the model represents and explain each of your answers.
- Write the quotient and remainder for $6,986 \div 8$.
- Explain how to use multiplication to check that the quotient is correct. You may show your work in your explanation.

Enter your answers and your explanations in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[.]
=	<	>	≠
\$	°	?	

16. Greg is volunteering at a track meet. He is in charge of providing the bottled water. Greg knows these facts:

- The track meet will last 3 days.
- There will be 117 athletes, 7 coaches, and 4 judges attending the track meet.
- One case of bottled water contains 24 bottles.

The table shows the number of bottles of water each athlete, coach, and judge will get for each day of the track meet.

Bottled Water for Track Meet

Person Attending	Number of Bottles
Athlete	4
Coach	3
Judge	2

What is the **fewest** number of cases of bottled water Greg will need to provide for all the athletes, coaches, and judges at the track meet? Show your work or explain how you found your answer using equations.

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



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[.]
=	<	>	≠
\$	°	?	