New York State Testing Program
Grade 4 Common Core
Mathematics Test

Released Questions with Annotations

Practice Copy

Answers and explanations are found online - go to
ps59library.org
click the link Engage NY Practice Tests
on the grid in the center of the page, click on the link for your grade
(The numbers in parentheses show the question's page number)
Which number is sixteen thousand four hundred seventy-two in standard form?

A  16,472  
B  16,702  
C  160,472  
D  164,702

(1)

Which figure appears to show two parallel lines?

A  
B  
C  
D  

(2)
Tom shaded the figure below to model a fraction.

Which figure models an equivalent fraction?

A
B
C
D

There are 5,280 feet in a mile. What is the total number of feet in 6 miles?

A 31,280
B 31,680
C 33,680
D 35,280
Which number sentence is true?

A. \( \frac{3}{8} < \frac{1}{4} \)
B. \( \frac{1}{2} < \frac{3}{6} \)
C. \( \frac{3}{5} = \frac{8}{10} \)
D. \( \frac{2}{3} = \frac{4}{6} \)

Bradley saw 3 dinosaur skeletons at the museum. To measure the length of each skeleton, he counted the number of his shoe lengths from the head to the tail, as shown in the picture below.

Bradley's shoe length is 17 cm long. Which list shows the dinosaur skeletons that were more than 320 centimeters long?

A. Dinosaur X and Dinosaur Y
B. Dinosaur X and Dinosaur Z
C. Dinosaur Y and Dinosaur Z
D. Dinosaur X, Dinosaur Y, and Dinosaur Z
Which multiplication sentence can be used to calculate the total shaded area shown in the model below?

A  $4 \times \frac{1}{8} = \, ?$
B  $8 \times \frac{1}{4} = \, ?$
C  $4 \times \frac{1}{5} = \, ?$
D  $6 \times \frac{1}{4} = \, ?$

Rosa wrote a pattern using the rule “subtract 7.” The first two numbers in her pattern were 83 and 76. Which number below is part of Rosa’s pattern?

A  41  
B  49  
C  57  
D  61
A club’s first meeting was attended by 28 people. The first meeting was attended by 4 times as many people as the second meeting. How many people attended the second meeting?

A 7  
B 24  
C 32  
D 112

In the number below, how many times greater is the number represented by the digit in the thousands place than the number represented by the digit in the hundreds place?

57,762

A 1  
B 10  
C 100  
D 1,000
Ms. Turner drove 825 miles in March. She drove 3 times as many miles in March as she did in January. She drove 4 times as many miles in February as she did in January. What was the total number of miles Ms. Turner drove in February?

A 1,100
B 1,925
C 5,775
D 9,900
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

Answer $\text{__________________________}$
A builder planned to build houses. Each house will be built on \( \frac{5}{6} \) of an acre. How much land would be needed for 7 houses?

*Show your work.*

Answer________________ acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

Answer________________ acres
Pete painted $\frac{4}{8}$ of a rectangle green. He painted $\frac{1}{8}$ of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

**Answer**

**Show or explain how you got your answer.**

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.
Measured CCLS: 4.NBT.6; 4.OA.3

Commentary: The item measures 4.NBT.6 because it asks the student to find whole-number quotients with a four-digit dividend and a one-digit divisor. The item also measures 4.OA.3 because it asks the student to solve multi-step word problems involving operations with whole-number answers.

Extended Rationale: The correct answer could be arrived at by first finding the amount of money each of the six people from the elementary school gave to the town by dividing the amount of money, $1,890, by the number of people that gave: $1,890 ÷ 6 = 315.

The next step would be to subtract the amount of money given by each person at the middle school from the amount of money given by each person at the elementary school: 315 – 280 = 35.

Each person at the elementary school gave $35 more than each person at the middle school.

SAMPLE STUDENT RESPONSES AND SCORES APPEAR ON THE FOLLOWING PAGES:
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

\[
\begin{array}{c}
\frac{315}{6} \div 1890 \\
\frac{315}{6} \\
\frac{18}{6} \\
\frac{09}{09} \\
\frac{6}{30}
\end{array}
\]

Answer $ 35.00

Score Point 2 (out of 2 points)
This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. This response uses mathematically sound procedures (1,890 ÷ 6; 315 - 280) to determine how much more each person at the elementary school gave ($35).
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

Each person from the elementary school gave $35 more than each person from the Middle school.

Score Point 2 (out of 2 points)

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. This response uses mathematically sound procedures (both bar models and calculations) to determine how much more each person at the elementary school gave ($35). The transcription error in the second elementary school bar model does not detract from the demonstration of a thorough understanding.
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

\[
\begin{array}{c|c}
6 & 300 \\
\hline
1800 & +14 \\
\hline
90 & +1 \\
\hline
84 & 315 \\
\hline
6 & 280 \\
\hline
0 & 5
\end{array}
\]

Answer: $35

Score Point 2 (out of 2 points)

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. This response uses mathematically sound procedures (the partial quotient method to calculate $1,890 \div 6$; $315 - 280$) to determine out how much more each person at the elementary school gave ($35$).
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

*Show your work.*

```
6 | 1890
- | 1800
---|---
  | 90
- | 60
---|---
  | 30
- | 30
---|---
  | 0
```

<table>
<thead>
<tr>
<th>Elementary: 515</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle: 280</td>
</tr>
</tbody>
</table>

**Answer: 25.00**

---

**Score Point 1 (out of 2 points)**

This response is only partially correct. The response applies a mathematically appropriate process ($1,890 \div 6; 315 - 280$); however, a subtraction error results in an incorrect answer ($25$).
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

\[ \frac{1890}{6} = 315 \]

\[ \frac{280 \times 5}{5} = 1400 \]

\[ \frac{1890 - 1400}{5} = \frac{490}{5} = 98 \]

**Score Point 1 (out of 2 points)**

This response demonstrates only a partial understanding of the mathematical concepts. This response uses a mathematically sound procedure ($1,890 \div 6 = $315) to determine the amount each person at the elementary school gave. However, the response does not determine the difference between 315 and 280. Calculating the total amount given by the people at the middle school does not enhance nor detract from the quality of the response.
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts. This response uses a mathematically sound procedure ($1,890 ÷ 6 = $315) to determine the amount given by each person at the elementary school. However, an incorrect procedure of dividing 280 by 5 results in an incorrect component for determining the difference in gift amounts ($315 – 56 = 259), which results in an incorrect answer.
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

\[
\begin{array}{c}
1,890 \\
-1,400 \\
\hline
490
\end{array}
\]

The elementary gave more money to the town than the middle school.

Answer: 490

**Score Point 0 (out of 2 points)**

This response is irrelevant. This response compares the difference between the two groups instead of the individual donors. Although the calculations are correct, holistically, this work is not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.
A group of 6 people at an elementary school gave a total of $1,890 to a town to fix up a playground. Each person gave the same amount.

At a middle school, 5 people each gave $280 to the same town.

How much more did each person at the elementary school give than each person at the middle school?

Show your work.

\[
\begin{align*}
\text{Product of } 1890 \times 6 &= 11,340 \\
\text{Product of } 280 \times 5 &= 1,400 \\
\text{Difference} &= 11,340 - 1,400 = 10,940
\end{align*}
\]

Answer: $10,940

Score Point 0 (out of 2 points)
This response is irrellevant. This response answers with the difference between the product of $1,890 and 6 and the product of $280 and 5 ($11,340 - $1,400 = $10,940), two incorrect procedures. Although the calculations are completed correctly, holistically, this work is not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.
**Measured CCLS:** 4.NF.4c; 4.NF.3d

**Commentary:** The item measures 4.NF.4c because it asks the student to solve a word problem involving multiplication of a fraction by a whole number. The item also measures 4.NF.3d because it asks the student to solve word problems involving the subtraction of fractions.

**Extended Rationale:** The correct answer to the first part of the item could be arrived at by multiplying the number of acres needed for one house by the number of houses that will be built: \( \frac{5}{6} \times 7 = \frac{35}{6} = 5 \frac{5}{6} \) acres.

Another approach could be repeated addition. The number of acres needed for seven houses could also be achieved by adding \( \frac{5}{6} \) seven times: \( \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{35}{6} = 5 \frac{5}{6} \).

After finding the amount of land needed for seven houses the student would subtract this amount from 10. The student may convert the whole number 10 to a mixed number with a denominator of 6: \( 9 \frac{5}{6} - 5 \frac{5}{6} = 4 \frac{1}{6} \).

A student could also use a visual fraction model to compare \( 5 \frac{5}{6} \) with 10:

![Visual fraction model](image)

**SAMPLE STUDENT RESPONSES AND SCORES APPEAR ON THE FOLLOWING PAGES:**
A builder planned to build houses. Each house will be built on $\frac{5}{6}$ of an acre. How much land would be needed for 7 houses?

**Show your work.**

$$\frac{5}{6} \times 7 = \frac{35}{6}$$

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

**Answer:** $\frac{5}{6}$ acres

**Score Point 2 (out of 2 points)**

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. In the first part, a sound mathematical procedure ($\frac{5}{6} \times 7$) is used, all necessary work is shown, and the answer is correct. The second answer is also correct.
A builder planned to build houses. Each house will be built on \( \frac{5}{6} \) of an acre.

How much land would be needed for 7 houses?

**Show your work.**

\[
\frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{35}{6} = 5 \frac{5}{6}
\]

**Answer** \( 5 \frac{5}{6} \) acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

**Answer** \( 4 \frac{1}{6} \) acres

**Score Point 2 (out of 2 points)**

This response answers the question correctly and indicates that the student has completed the task using mathematically sound procedures. In the first part, a sound mathematical procedure \((\frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6})\) is used, all necessary work is shown, and the answer is correct. The second answer is also correct.
A builder planned to build houses. Each house will be built on \( \frac{5}{6} \) of an acre. How much land would be needed for 7 houses?

*Show your work.*

\[
\frac{5}{6} \times 7 = \frac{35}{6}
\]

**Answer** \( \frac{35}{6} \) acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

\[
\frac{25}{6} - \frac{10}{25} = \frac{15}{6}
\]

**Answer** \( \frac{15}{6} \) acres

**Score Point 2 (out of 2 points)**

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. In the first part, an appropriate mathematical process \((\frac{5}{6} \times 7)\) is used, all necessary work is shown, and the answer is correct. The second answer is also correct.
A builder planned to build houses. Each house will be built on \( \frac{5}{6} \) of an acre.

How much land would be needed for 7 houses?

Show your work.

\[
\frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{15}{6}; \quad \frac{15}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{35}{6}
\]

Answer \( \frac{35}{6} \) acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

\( 10 - \frac{35}{6} \)

Answer \( \frac{1}{6} \) acres

Score Point 1 (out of 2 points)

This response is only partially correct; it correctly addresses some elements of the task. In the first part, an appropriate mathematical process is used (\( \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{15}{6}; \quad \frac{15}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} + \frac{5}{6} = \frac{35}{6} \)), all necessary work is shown, and the answer is correct. The second answer is incorrect.
A builder planned to build houses. Each house will be built on \( \frac{5}{6} \) of an acre. How much land would be needed for 7 houses?

Score Point 1 (out of 2 points)
This response demonstrates only a partial understanding of the mathematical concepts. In the first part, although the answer in the answer blank is correct, no work is shown that results in the given answer. In the second part, work is not required and the answer is correct.
A builder planned to build houses. Each house will be built on $\frac{5}{6}$ of an acre. How much land would be needed for 7 houses?

**Show your work.**

\[
\frac{5}{6} + \frac{5}{6} = \frac{2}{10} + \frac{10}{12} = \frac{4}{20}.
\]

\[
\frac{20 + 10}{12} = \frac{30}{36} + \frac{5}{6} = \frac{35}{42}.
\]

**Answer**: $\frac{35}{42}$ acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

**Answer**: 3 acres

---

**Score Point 0 (out of 2 points)**

This response is incorrect. While the process of adding the space seven times is an appropriate process for this type of problem, a lack of understanding of the procedure for adding fractions is demonstrated and the answer is incorrect. The second answer is also incorrect. Holistically, this is not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.
A builder planned to build houses. Each house will be built on $\frac{5}{6}$ of an acre. How much land would be needed for 7 houses?

*Show your work.*

Answer: $7$ acres

The builder began with 10 acres of land. After 7 houses were built, how much land was left unused?

Answer: $3$ acres

Score Point 0 (out of 2 points)
This response is incorrect. An incorrect procedure is used and both answers are incorrect.
**Measured CCLS: 4.NF.3d**

**Commentary:** The item measures 4.NF.3d and asks the student to solve a word problem that involves addition and subtraction of fractions referring to the same whole and having like denominators.

**Extended Rationale:** The correct answer is determined by first adding \( \frac{4}{8} + \frac{1}{8} = \frac{5}{8} \) to show the fraction of the rectangle that is green and blue; and then subtracting \( \frac{5}{8} \) from \( \frac{8}{8} \) because the sum of all the parts must equal \( \frac{8}{8} \) or 1. As a result, \( \frac{3}{8} \) of the rectangle remains for Pete to paint red.

To show or explain the answer, a student would include the work done to solve the problem or explain the process in words, as above.

Finally, a variety of rectangles could be drawn to model the amount of color Pete used:

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<td>B</td>
<td>R</td>
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<tr>
<td>G</td>
<td>G</td>
<td>R</td>
<td>R</td>
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</table>

OR

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<tbody>
<tr>
<td>G</td>
<td>G</td>
<td>G</td>
<td>G</td>
<td>B</td>
</tr>
</tbody>
</table>

R

R

R

A rectangle divided into eight equal regions with four regions marked “G”, three regions marked “R” and one region marked “B”.

**SAMPLE STUDENT RESPONSES AND SCORES APPEAR ON THE FOLLOWING PAGES:**
Pete painted $\frac{4}{8}$ of a rectangle green. He painted $\frac{1}{8}$ of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

Score Point 3 (out of 3 points)
This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. The answer ($\frac{3}{8}$), explanation ($\frac{4}{8} + \frac{1}{8} = \frac{5}{8}$ then I did $\frac{5}{8} + \frac{3}{8}$ which equals $\frac{8}{8}$), and model are all correct. The incorrect mathematical statement ($\frac{4}{8} + \frac{1}{8} = \frac{5}{8} + \frac{3}{8} = \frac{8}{8}$) does not detract from the demonstration of a thorough understanding.
Pete painted \( \frac{4}{8} \) of a rectangle green. He painted \( \frac{1}{8} \) of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

\[
\frac{4}{8} - \frac{1}{8} = \frac{3}{8}
\]

\[
\frac{1}{8}
\]

\[
\frac{3}{8}
\]

Answer \( \frac{3}{8} \) red

Show or explain how you got your answer.

I got my answer by drawing a rectangle and 7 equal lines. Then I labeled the first four green, 1 blue and the rest red. Which is \( \frac{3}{8} \).

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.

Score Point 3 (out of 3 points)

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. The answer (\( \frac{3}{8} \) red), explanation (labeled the first four green, one blue and the rest red), and model are all correct.
Score Point 3 (out of 3 points)
This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts. The answer \(\frac{3}{8}\), explanation \(\frac{8}{8} - \frac{5}{8} = \frac{3}{8}\), and model are all correct. The task has been completed correctly using mathematically sound procedures.
Pete painted \(\frac{4}{8}\) of a rectangle green. He painted \(\frac{1}{8}\) of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

Answer: \(\frac{3}{8}\)

Show or explain how you got your answer.

Well first I did the rectangle below and drew 7 boxes then I colored 5 then I counted how many I had left.

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.

Score Point 2 (out of 3 points)
This response demonstrates partial understanding of the mathematical concepts and procedures embodied in the task. The answer \((\frac{3}{8})\) and explanation are correct; however, the model is not labeled.
Pete painted $\frac{4}{6}$ of a rectangle green. He painted $\frac{1}{6}$ of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

\[
\begin{array}{c}
\text{Answer:} \\
\frac{5}{3}
\end{array}
\]

Show or explain how you got your answer.

I got my answer by subtracting 5 from 8.

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.

Score Point 1 (out of 3 points)

This response is incomplete and demonstrates only a limited understanding of the mathematical concepts and procedures embodied in the task. The answer (3) is incorrect and the explanation lacks specificity, such as showing work using fractions or describing how the model was used. The model, however, is correct.
Pete painted $\frac{4}{8}$ of a rectangle green. He painted $\frac{1}{8}$ of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

Answer

Show or explain how you got your answer.

I just did $4 + 1$ and I got $5$. So then in my head I did $8 - 5$ and I got $3$.

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.

Score Point 1 (out of 3 points)

This response is incomplete and demonstrates only a limited understanding of the mathematical concepts and procedures embodied in the task. The answer (3) is incorrect, and the explanation is incomplete. The model, however, is correct.
Score Point 1 (out of 3 points)

This response is incomplete and demonstrates only a limited understanding of the mathematical concepts and procedures embodied in the task. The answer and explanation are incorrect; however, the model is correct.
Pete painted $\frac{2}{5}$ of a rectangle green. He painted $\frac{1}{5}$ of the same rectangle blue. Pete painted the rest of the rectangle red. What fraction of the rectangle did Pete paint red?

**Answer** $\frac{1}{5}$

**Show or explain how you got your answer.**

It was closer to what it said Pete painted.

Draw a rectangle to model the amount of each color Pete used. Divide the rectangle into equal parts, and label the parts G for green, B for blue, and R for red.

Score Point 0 (out of 3 points)

This response is incorrect and not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task. The answer and explanation are incorrect. In addition, while the blue and green squares are labeled correctly, the red squares are incorrect for both the specific item requirements and the answer provided.