About the Practice Test Scoring Guides

The Smarter Balanced Mathematics Practice Test Scoring Guides provide details about the items, student response types, correct responses, and related scoring considerations for the Smarter Balanced Practice Test items. The items selected for the Practice Test are designed to reflect

- a broad coverage of claims and targets that closely mirror the summative blueprint.
- a range of student response types.
- a breadth of difficulty levels across the items, ranging from easier to more difficult items.
- a sample of performance tasks with open-ended response types that allow students to demonstrate knowledge related to critical thinking and application.

It is important to note that all student response types are not fully represented on every practice test, but a distribution can be observed across all the practice tests. The items presented are reflective of refinements and adjustments to language based on pilot test results and expert recommendations from both content and accessibility perspectives.

Within this guide, each item is presented with the following information:\(^1\):

- Claim
- Domain
- Target\(^2\)
- Depth of Knowledge (DOK)
- Common Core State Standards for Mathematical Content (CONTENT)
- Common Core State Standards for Mathematical Practice (MP)
- Answer key or exemplar
- Static presentation of the item
- Static presentation of student response field(s)
- Rubric and applicable score points for each item

The following items are representative of the kinds of items that students can expect to experience when taking the Computer Adaptive Test (CAT) portion of the summative assessment for Grade 7. A separate document is available that provides a Grade 7 sample performance task and scoring guide.

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\(^1\) Most of these terms (Claim, Domain, Target, DOK, etc.) are defined in various other Smarter Balanced documents, as well as the Common Core State Standards for Mathematics. Refer to the Content Specifications for the Summative Assessment of the Common Core State Standards for Mathematics for more information.

\(^2\) When more than one target is presented, the first one listed is considered the primary target for the item.
Enter the value of $\frac{3}{4} + \frac{7}{12} - (-4)$.

Key: $5\frac{1}{3}$

Rubric: (1 point) Student enters a correct value.
Mark buys a wooden board that is $7 \frac{1}{2}$ feet long. The cost of the wooden board is $0.50$ per foot, including tax.

Enter the total cost, in dollars, of the wooden board.

Key: 3.75

Rubric: (1 point) Student enters the correct cost of the wooden board.
Which number line shows the solution to the inequality $-3x - 5 < -2$?

**Key:** A

**Rubric:** (1 point) Student selects the correct number line.
The spinner has 8 equal-sized sections, each labeled 1, 2, 3, or 4. The arrow on the spinner is spun.

What is the probability of the arrow stopping on a section labeled with a 2?

A. \(\frac{1}{4}\)
B. \(\frac{1}{8}\)
C. \(\frac{3}{8}\)
D. \(\frac{3}{4}\)

Key: C

Rubric: (1 point) Student selects the correct probability.
Enter the value of the expression.

2.3 • (4 + 12)

**Key:** 36.8 or its equivalent

**Rubric:** (1 point) Student enters a correct value.
Enter the value of $p$ so the expression $\frac{5}{6} - \frac{1}{3}n$ is equivalent to $p(5 - 2n)$.

Key: $\frac{1}{6}$

Rubric: (1 point) Student enters a correct value.
A representative sample of 50 students from a high school is surveyed. Each student is asked what science class he or she is taking.

This table shows the responses.

<table>
<thead>
<tr>
<th>Science Class</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>Biology</td>
<td>18</td>
</tr>
<tr>
<td>Earth Science</td>
<td>4</td>
</tr>
<tr>
<td>Health Science</td>
<td>12</td>
</tr>
</tbody>
</table>

Select all of the statements that are valid based on the survey results.

- About 20% of students at the high school are taking Chemistry.
- About twice as many students are taking Health Science than are taking Physics.
- For every 150 students we could predict that at least 18 of the students are taking Physics.
- For every 25 students we could predict that at least 4 of the students are taking Earth Science.

**Exemplar:** (shown at right)

- About 20% of students at the high school are taking Chemistry.
- About twice as many students are taking Health Science than are taking Physics.
- For every 150 students we could predict that at least 18 of the students are taking Physics.
- For every 25 students we could predict that at least 4 of the students are taking Earth Science.

**Rubric:** (1 point) Student selects the first, second, and third statements.
In the given equation, $a$, $b$, and $c$ are nonzero rational numbers.

$$a \cdot b = c$$

Given this equation, drag one number into each box to complete four true equations.

Exemplar: (shown at right)

$$-a \cdot \square = c$$

$$\square \cdot \square = -c$$

$$\square = a$$

$$\square = -a$$

Rubric: (2 points) Student creates four true equations. Other correct responses for second and fourth equations include:

$$-a \cdot b = -c$$

OR

$$\frac{-c}{-b} = a$$

(1 point) Student creates two or three true equations.

$$\frac{-c}{b} = -a$$
George earns $455 per week. George receives a 20% raise.

How can George calculate his new weekly pay rate?

Select all calculations that will result in George's new weekly pay rate.

- divide $455 by 0.20
- divide $455 by 1.20
- multiply $455 by 0.20
- multiply $455 by 1.20
- solve for $x$: \[ \frac{x}{455} = \frac{120}{100} \]
- solve for $x$: \[ \frac{455}{x} = \frac{20}{100} \]

**Exemplar:** (shown at right)

**Rubric:** (1 point) Student selects the fourth and fifth options.
Alex claims that when $\frac{1}{4}$ is divided by a fraction, the result will be greater than $\frac{1}{4}$.

To convince Alex that this statement is only sometimes true:

**Part A:** Drag one digit into each box to create an expression that is greater than $\frac{1}{4}$.

**Part B:** Drag one digit into each box to create an expression that is not greater than $\frac{1}{4}$.

**Exemplar:** (shown at right)

**Rubric:** (2 points)

**Part A:** Student creates a fraction where the denominator is greater than the numerator. **AND**

**Part B:** Student creates a fraction where the numerator is greater than or equal to the denominator.

(1 point)

**Part A:** Student creates a fraction where the denominator is greater than the numerator. **OR**

**Part B:** Student creates a fraction where the numerator is greater than or equal to the denominator.
Which number line model represents the sum of $1\frac{1}{2} + (-\frac{1}{2})$?

Key: D

Rubric: (1 point) Student selects the correct number line.
Which expression is equivalent to $-8(10x - 3)$?

- **A** $-80x + 24$
- **B** $-80x - 24$
- **C** $-80x - 3$
- **D** $-80x + 3$

**Key:** A

**Rubric:** (1 point) Student selects the correct expression.
Tim makes 80 gallons of paint by mixing 48 gallons of gray paint with 32 gallons of white paint.

What part of every gallon is gray paint?

The model represents 1 gallon of mixed paint.

Select the bars to show how much of the gallon is gray paint.

**Exemplar:** (shown at right)

**Rubric:** (1 point) Student selects enough bars to indicate 0.60.
Mr. Anthony wants to know how some student athletes are improving in the number of push-ups they can do.

These dot plots show the number of push-ups each student was able to do last month and this month.

![Dot plot of push-ups last month]

10 15 20 25 30 35 40 45

Number of Push-ups Last Month

![Dot plot of push-ups this month]

10 15 20 25 30 35 40 45

Number of Push-ups This Month

What is the increase in the mean number of push-ups from last month to this month?

Key: 7.5 or its equivalent

Rubric: (1 point) Student enters a correct value for the mean number.
Enter the value of $n$ so the expression $(-y + 5.3) + (7.2y - 9)$ is equivalent to $6.2y + n$.

**Key:** -3.7 or its equivalent

**Rubric:** (1 point) Student enters a correct value of $n$. 
This table shows a proportional relationship between $x$ and $y$.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
</tr>
<tr>
<td>8</td>
<td>96</td>
</tr>
</tbody>
</table>

Find the constant of proportionality ($r$).

Using the value for $r$, enter an equation in the form of $y = rx$.

**Key:** $y = 12x$ or an equivalent equation

**Rubric:** (1 point) Student enters a correct equation.
Dave buys a baseball for $15 plus an 8% tax. Mel buys a football for $20 plus an 8% tax.

Enter the difference, in dollars, of the amounts Dave and Mel pay, including tax. Round your answer to the nearest cent.

Key: 5.40

Rubric: (1 point) Student enters the correct amount.
This graph shows a proportional relationship between the number of hours \((h)\) a business operates and the total cost \((c)\) of electricity.

**Cost of Electricity**

Select True or False for each statement about the graph.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point A represents the total cost of electricity when operating the business for 6 hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The total cost of electricity is $8 when operating the business for 80 hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The total cost of electricity is $10 when operating the business for 1 hour.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Exemplar:** (shown at right)

**Rubric:** (1 point) Student correctly selects true or false for each statement (TFT).
Determine whether each statement is true for all cases, true for some cases, or not true for any case.

<table>
<thead>
<tr>
<th>Two vertical angles form a linear pair.</th>
<th>True for all cases</th>
<th>True for some cases</th>
<th>Not true for any cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>If two angles are supplementary and congruent, then they are right angles.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The sum of two adjacent angles is 90°.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The measure of an exterior angle of a triangle is greater than every interior angle of the triangle.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Exemplar:** (shown below)

<table>
<thead>
<tr>
<th>Two vertical angles form a linear pair.</th>
<th>True for all cases</th>
<th>True for some cases</th>
<th>Not true for any cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>If two angles are supplementary and congruent, then they are right angles.</td>
<td>✓</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The sum of two adjacent angles is 90°.</td>
<td>☐</td>
<td>✓</td>
<td>☐</td>
</tr>
<tr>
<td>The measure of an exterior angle of a triangle is greater than every interior angle of the triangle.</td>
<td>☐</td>
<td>✓</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Rubric:** (1 point) Student selects the correct option for each statement.
The entry fee to the fair is $4.00. Each ride requires a ticket that costs $0.50. Heidi spent a total of $12.00.

How many tickets did Heidi purchase?

A 6
B 16
C 24
D 32

Key: B
Rubric: (1 point) Student selects the correct option.
Shelly incorrectly solves the equation \( \frac{1}{2}(c + 6) = 7 \). Her work is shown.

**Part A:**
Select **all** the steps that show an error based on the equation in the previous step.

**Part B:**
Use the Add Point tool to show the correct solution of the given equation.

**Exemplar:** (shown on right)

**Rubric:**
(2 points) Student selects the correct steps that show an error and places a point at 8.
(1 point) Student selects the correct steps that show an error or places a point at 8.
David uses $\frac{1}{2}$ cup of apple juice for every $\frac{1}{4}$ cup of cranberry juice to make a fruit drink.

Enter the number of cups of apple juice David uses for 1 cup of cranberry juice.

Key: 2

Rubric: (1 point) Student enters the correct number of cups.
A store is having a sale. Each customer receives either a 15% discount on purchases under $100 or a 20% discount on purchases of $100 or more. Kelly is purchasing some clothes for $96.60 before the discount. She decides to buy the fewest packs of gum that will increase her purchase to over $100. The price of each pack of gum is $0.79.

After the discount, how much less will Kelly pay by purchasing the clothes and the gum instead of purchasing only the clothes? (Assume there is no sales tax to consider.)

\[
\begin{array}{l}
\text{(A) } 1.05 \\
\text{(B) } 1.67 \\
\text{(C) } 3.69 \\
\text{(D) } 3.87
\end{array}
\]

**Key:** B

**Rubric:** (1 point) Student selects the correct amount.
Aimee has $10.00 to spend on school supplies. The following table shows the price of each item in the school store. No sales tax is charged on these items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eraser</td>
<td>$0.89</td>
</tr>
<tr>
<td>Folder</td>
<td>$1.29</td>
</tr>
<tr>
<td>Notebook</td>
<td>$2.35</td>
</tr>
<tr>
<td>Pen</td>
<td>$0.70</td>
</tr>
</tbody>
</table>

Determine if Aimee can buy the combination of items with her $10.00. Select Yes or No for each combination of items.

Exemplar: (shown at right)

Rubric: (1 point) Student selects the correct combinations of items (YYNNY).
Select all the graphs that show a proportional relationship between \( x \) and \( y \).

**Exemplar:** (shown at right)

**Rubric:** (1 point) Student selects the bottom left and the top right graphs.
A scale factor of 3.5 maps Figure A onto Figure B.

Enter the value of $x$.

**Key:** 17.5 or its equivalent

**Rubric:** (1 point) Student enters a correct value of $x$. 
A corner shelf is \(\frac{1}{4}\) of a circle and has a radius of 10.5 inches.

Enter the area of the shelf, in square inches. Round your answer to the nearest hundredth.

Key: 86.55 – 86.68

Rubric: (1 point) Student enters any number within the given range (inclusive) for the area of the shelf.
John needs to paint one wall in his school. He knows that 1 can of paint covers an area of 24 square feet. John uses a meter stick to measure the dimensions of the wall as shown.

![Diagram of a wall with dimensions 1m x 1m x 1m]

[1 meter = approximately 39 inches]

What is the fewest number of cans of paint John can use to paint the wall?

Key: 4

Rubric: (1 point) Student enters the correct number of cans.
Carrie's basketball team has played 5 games. The number of points Carrie scored in each game is shown in the bar graph.

Determine possible point totals for games 6 and 7 so that the range of the data set increases, but the mean and median stay the same.

Select point totals above the labels 6 and 7 to complete the bar graph.

Exemplar: (shown at right)
Other answers are possible.

Rubric: (1 point) Student clicks on correct values so the sum of Game 6 and Game 7 point values will equal 24, and with the higher of the two scores greater than 16.