



Grade 12 Mathematics

Answer Key



This booklet contains the answers to the sample items from the National Assessment of Educational Progress (NAEP) included in the NAEP Grade 12 Mathematics Sample Questions Booklet. It also references the corresponding Common Core State Standards. Additional NAEP items can be accessed at www.nces.ed.gov/nationsreportcard/itmrls.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES), National Assessment of Educational Progress (NAEP).

This answer booklet and the corresponding Grade 12 Mathematics Sample Questions Booklet are posted at <http://www.fldoe.org/asp/naep/naep-pt.asp>.

NAEP GRADE 12 MATHEMATICS ANSWER KEY

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Mathematics Common Core (MACC) State Standards (CCSS) Domains

EE = Expressions and Equations

F = Functions

G = Geometry

MD = Measurement and Data

NBT = Number and Operations in Base Ten

NF = Number and Operations Fractions

NS = Number Systems

OA = Operations and Algebraic Thinking

RP = Ratios and Proportional Relationships

SP = Statistics and Probability

F-BF = Building Functions

A-SSE = Seeing Structure in Expression

A-APR = Arithmetic with Polynomials and
Rational Expressions

A-REI = Reasoning with Equations and Inequalities

G-SRT = Similarity, Right Triangles, and Trigonometry

G-CO = Congruence

S-ID = Interpreting Categorical and Quantitative Data

NAEP GRADE 12 MATHEMATICS

Alignment to Mathematics Common Core (MACC) State Standards (CCSS) and Answers to NAEP Sample Questions

NAEP GRADE 12 NUMBER PROPERTIES AND OPERATIONS

Question 1, MACC.6.NS.2.3

Description: Multiply a 3-digit number by a decimal number

Difficulty: Easy

Complexity: Low

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	63%
A	12%
C	12%
D	5%
E	7%
Omitted	1%

Question 2, MACC.6.RP.1.3c and MACC.7.RP.1.3

Description: Estimate amount of time for problem in context

Difficulty: Medium

Complexity: Low

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	52%
A	14%
B	12%
C	15%
E	7%

Question 3, MACC.6.EE.2.6

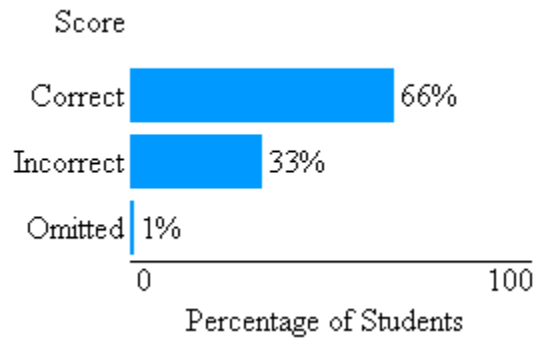
Description: Find the cost of mailing a letter, based on its weight

Difficulty: Easy

Complexity: Low

The correct answer is **C**

National Data¹



Question 4, MACC.6.RP.1.3c

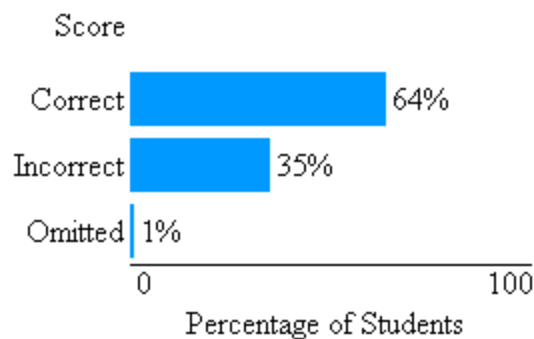
Description: Calculate an expected value, given a percentage

Difficulty: Easy

Complexity: Low

Correct answer is **C**

National Data



¹ Grade 12 mathematics state-level results for Florida are only available for 2009. Only national-level results are available for the other assessment years.

Question 5, MACC.7.G.1.1 and MACC.7.RP.1.3

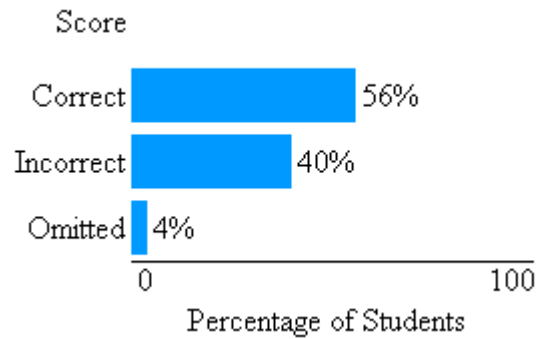
Description: Given the scale, determine the length of a side

Difficulty: Medium

Complexity: Low

Correct answer is **B**

National Data



Question 6, MACC.3.NBT.1.2 and MACC.4.NBT.2.4

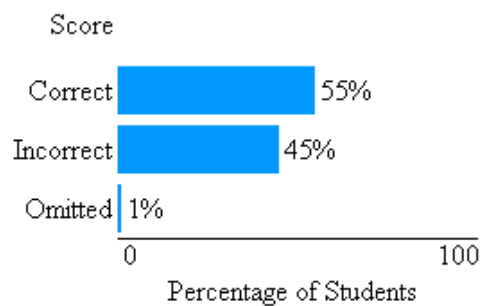
Description: Identify effect of changing certain digits on a number's value

Difficulty: Medium

Complexity: Low

Correct answer is **A**

National Data



Question 7, MACC.3.NBT.1.1, MACC.4.NBT.1.3, MACC.5.NBT.2.5, and MACC.6.NS.2.2

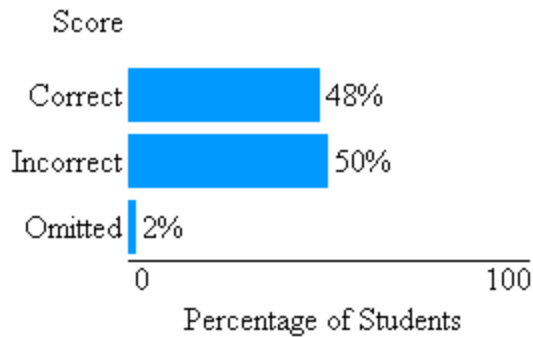
Description: Estimate property value, given tax rate and amount

Difficulty: Medium

Complexity: Moderate

Correct answer is **C**

National Data



Question 8, MACC.4.OA.2.3 and MACC.4.NBT.2.6

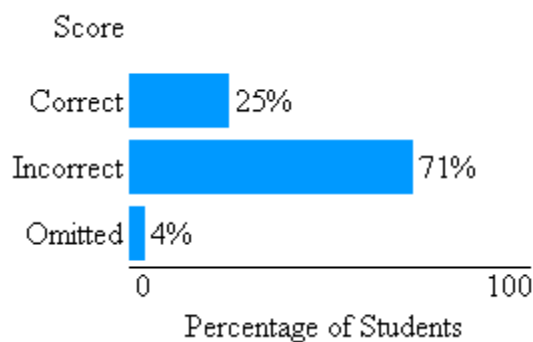
Description: Determine the remainder in an algebraic setting

Difficulty: Hard

Complexity: Moderate

The correct answer is **E**

National Data



Question 9, MACC.6.EE.2.6 and MACC.6.EE.2.7

Description: Determine a weight of a letter given mailing cost

Difficulty: Medium

Complexity: Moderate

Solution:

Any number of ounces greater than 4 but less than or equal to 5.

$$4 < oz \leq 5$$

Score & Description

Correct

Correct response with correct work and correct label - must say ounces.

Partial

Correct response (or correct process) with computational error; includes an answer of 4 with everything else correct.

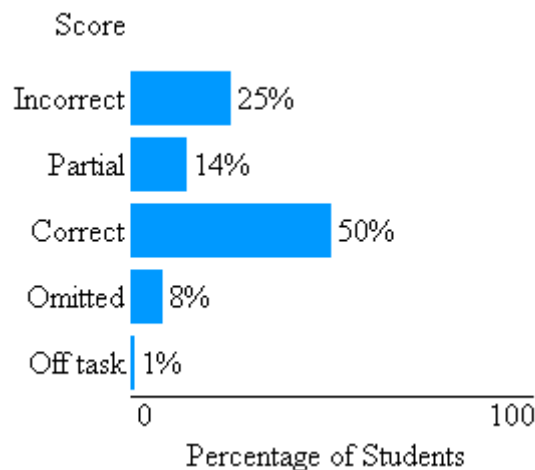
OR

Correct response without work or labels.

Incorrect

Incorrect response including all papers where 43 cents is used as cost of additional ounce.

National Data



Question 10, MACC.5.NF.2.6 and MACC.5.NF.2.7

Description: Solve a problem involving fractions

Difficulty: Hard

Complexity: Moderate

Solution:

$\frac{1}{12}$ or equivalent

Score & Description

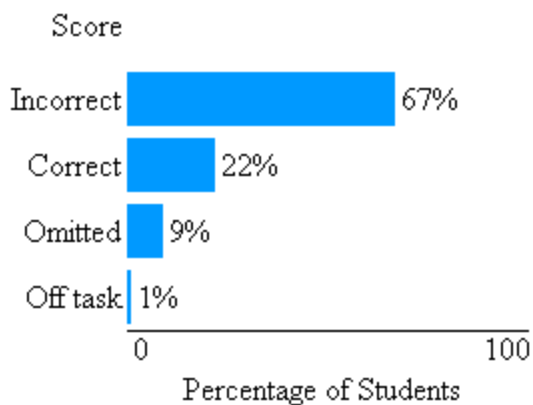
Correct

Correct response.

Incorrect

Incorrect response.

National Data



Question 11, MACC.7.RP.1.2b and MACC.7.RP.1.2c

Description: Determine proportional enlargement of photograph

Difficulty: Hard

Complexity: Moderate

Solution:

$$\frac{4}{6} = \frac{5}{x} \text{ where } x = \text{the length of the enlarged picture}$$

$$4x = 30$$

$$x = \frac{30}{4} = 7 \frac{1}{2}$$

To be a proportional enlargement, the picture should be 5 inches by $7 \frac{1}{2}$ inches because that maintains the same ratio of width to length as the 4-inch by 6-inch picture.

Score & Description

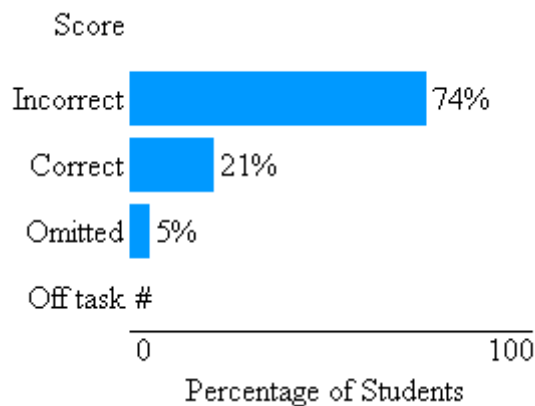
Correct

Correct response with justification.

Incorrect

Incorrect response.

National Data



NAEP GRADE 12 ALGEBRA

Question 1, MACC.6.EE.1.3 and MACC.6.EE.1.4

Description: Determine a nonequivalent expression

Difficulty: Easy

Complexity: Low

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	57%
A	14%
B	10%
C	5%
E	14%

Question 2, MACC.912.F-BF.1.2

Description: Solve problem involving numerical sequence

Difficulty: Medium

Complexity: Low

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	61%
A	7%
B	14%
D	13%
E	5%

Question 3, MACC.912.A-SSE.1.2 and MACC.912.A-APR.4.6

Description: Subtract rational expressions

Difficulty: Hard

Complexity: Low

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	21%
A	34%
B	10%
C	29%
E	5%

Question 4, MACC.8.EE.3.8b and MACC.912.A-REI.3.6

Description: Solve a system of linear equations

Difficulty: Medium

Complexity: Low

Solution:

Answer: $x = 3, y = 8$

Solution (not required in response):

Sample solution by elimination:

$$\begin{array}{r} 3x - 2y = -7 \\ x + y = 11 \end{array}$$

$$\begin{array}{r} 3x - 2y = -7 \\ 2[x + y = 11] \end{array}$$

$$\begin{array}{r} 3x - 2y = -7 \\ \underline{2x + 2y = 22} \\ 5x = 15 \\ x = 3 \end{array}$$

$$\begin{array}{r} 3 + y = 11 \\ y = 8 \end{array}$$

Sample solution by substitution:

$$\begin{array}{r} 3x - 2y = -7 \\ x + y = 11 \Rightarrow y = 11 - x \end{array}$$

$$\begin{array}{r} 3x - 2(11 - x) = -7 \\ 3x - 22 + 2x = -7 \\ 5x - 22 = -7 \end{array}$$

$$\begin{array}{r} 5x = 15 \\ x = 3 \end{array}$$

$$\begin{array}{r} 3 + y = 11 \\ y = 8 \end{array}$$

Question 4, continued

Score & Description

Correct

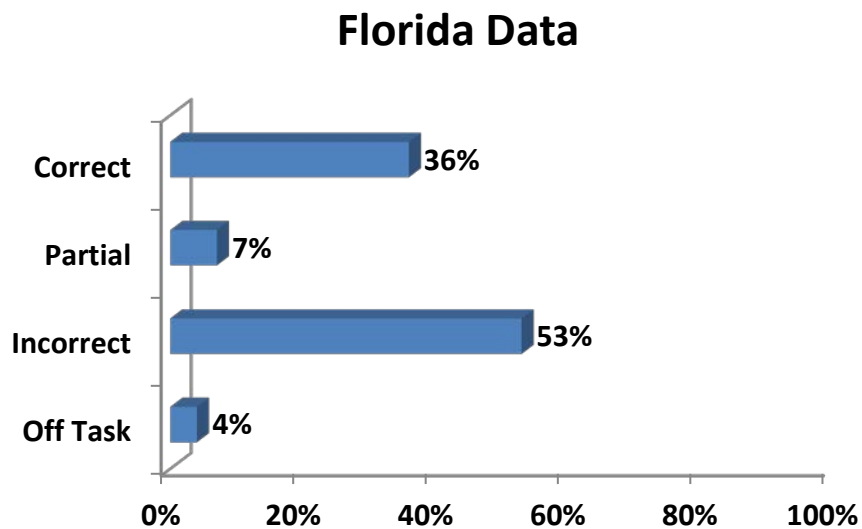
Both values correct

Partial

One correct value only

Incorrect

Incorrect response



Question 5, MACC.912.A-SSE.1.1 and MACC.912.A-SSE.2.3c

Description: Find annual rate of population growth

Difficulty: Hard

Complexity: Moderate

Solution:

(a) Answer: 50,000

Solution (not required in response):

In 1990, $t = 0$

$$P = 50,000(1 + r)^0 = 50,000(1) = 50,000$$

(b) Answer: 6.5% (or 0.065) (Accept responses from 6% to 7%, inclusive)

Question 5, continued

Solution (not required in response):

In 2001, $t = 11$

$$100,000 = 50,000(1 + r)^{11}$$

$$2 = (1 + r)^{11}$$

$$\sqrt[11]{2} = 1 + r$$

$$\sqrt[11]{2} - 1 = r$$

$$r \approx 0.065 \approx 6.5\%$$

Score & Description

Correct

Both parts correct

Partial 1

Part (a) correct only

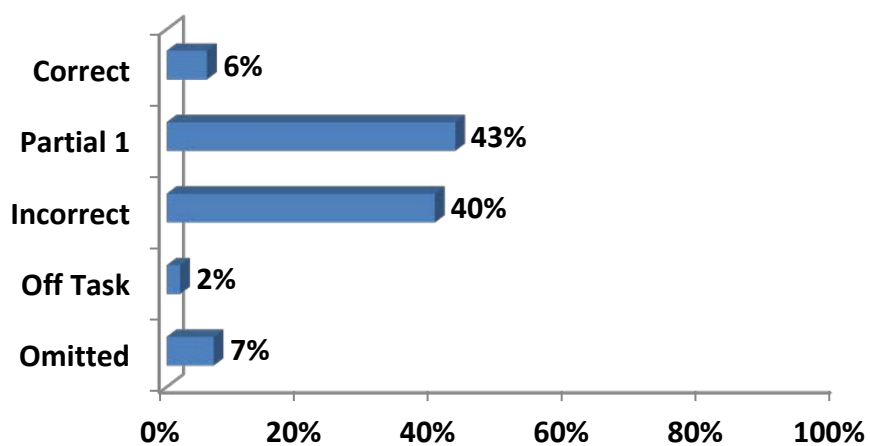
Partial 2

Part (b) correct only

Incorrect

Incorrect response

Florida Data



Question 6, MACC.8.EE.3.8c, MACC.912.A-REI.3.6, and MACC.912.A-REI.4.10

Description: Interpret characteristics of graph in a context

Difficulty: Hard

Complexity: High

Solution:

There are three components in this response.

Characteristic of Graph	Interpretation in Terms of the Race
y-intercepts	At 11 A.M. Runner <i>A</i> is 10 miles from the finish line and Runner <i>B</i> is 7 miles from the finish line.
(a) Slopes	Runner <i>A</i> 's speed is 8 mph and Runner <i>B</i> 's speed is 3.5 mph.
(b) Point of intersection	<p>Runner <i>A</i> and Runner <i>B</i> are both $4\frac{2}{3}$ miles from the finish line at 11:40 A.M.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • Accept distances from 4.5 to 5 miles, inclusive and times from 11:30 to 11:45, inclusive. • This can also be interpreted as the time and distance when Runner <i>A</i> overtakes Runner <i>B</i>.
(c) x-intercepts	Runner <i>A</i> finishes the race at 12:15 P.M. and Runner <i>B</i> finishes the race at 1 P.M.

Note: Sample responses for partial credit.

Question 6, continued

Characteristic of Graph	Interpretation Without Values	Values Only for Interpretation
y-intercepts	N/A	N/A
Slopes	The speed of each runner.	A = 8 mph B = 3.5 mph
Point of intersection	The point where or when Runner A overtakes Runner B. OR The time when both runners are at the same distance from the finish line.	11:40AM $4\frac{2}{3}$ miles
x-intercepts	The end of the race. OR The time that each runner finishes the race.	A = 12:15 PM B = 1:00 PM

Score & Description

Part A:

Correct

Acceptable response

Partial

Acceptable interpretation without numerical values for slopes

OR

Numerical values without acceptable interpretation for slopes

Incorrect

Incorrect response

Part B:

Correct

Acceptable response

Partial

Acceptable interpretation without numerical values for point of intersection

OR

Numerical values without acceptable interpretation for point of intersection

Incorrect

Incorrect response

Question 6, continued

Part C:

Correct

Acceptable response

Partial

Acceptable interpretation without numerical values for x-intercepts

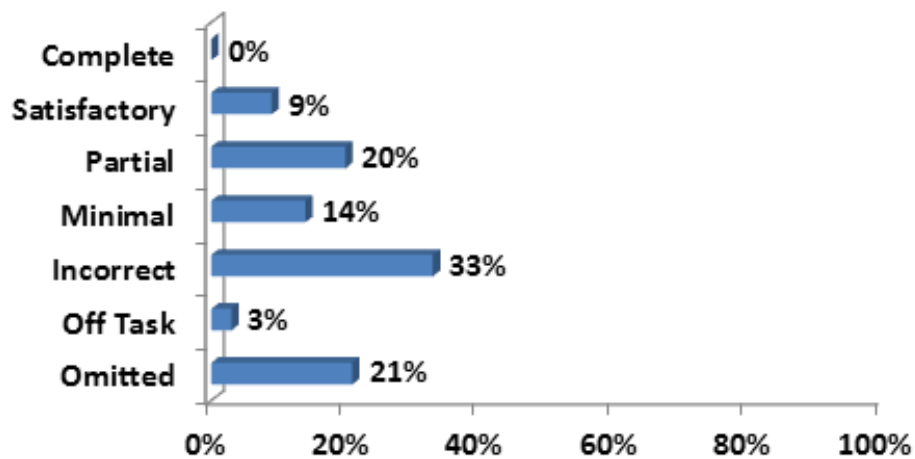
OR

Numerical values without acceptable interpretation for x-intercepts

Incorrect

Incorrect response

Florida Data



Question 6, continued

Composite Score:

Student response received one of five possible composite scores (Extended, Satisfactory, Partial, Minimal, or Incorrect) based on the student's combined performance on Parts A, B, and C of the item. For example, a student response of Correct for Part A, Correct for Part B, and Incorrect for Part C received a composite score of Satisfactory.

Composite Score	Part A	Part B	Part C
Extended	Correct	Correct	Correct
Satisfactory	Correct	Correct	Partial
	Correct	Correct	Incorrect
	Correct	Partial	Correct
	Correct	Incorrect	Correct
	Partial	Correct	Correct
	Incorrect	Correct	Correct
Partial	Correct	Partial	Partial
	Correct	Partial	Incorrect
	Correct	Incorrect	Partial
	Partial	Correct	Partial
	Partial	Correct	Incorrect
	Partial	Partial	Correct
	Partial	Partial	Partial
	Partial	Incorrect	Correct
	Incorrect	Correct	Partial
	Incorrect	Partial	Correct
Minimal	Correct	Incorrect	Incorrect
	Partial	Partial	Incorrect
	Partial	Incorrect	Partial
	Incorrect	Correct	Incorrect
	Incorrect	Partial	Partial
	Incorrect	Incorrect	Correct
Incorrect	Partial	Incorrect	Incorrect
	Incorrect	Partial	Incorrect
	Incorrect	Incorrect	Partial
	Incorrect	Incorrect	Incorrect

NAEP GRADE 12 MEASUREMENT

Question 1, MACC.4.MD.1.2 and MACC.5.MD.1.1

Description: Compare units of volume

Difficulty: Easy

Complexity: Low

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	61%
A	4%
C	20%
D	2%
E	13%

Question 2, MACC.4.MD.1.3, MACC.5.NBT.2.5, and MACC.6.NS.2.2

Description: Solve problem involving area in context

Difficulty: Easy

Complexity: Low

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	65%
A	8%
B	15%
C	10%
E	2%

Question 3, MACC.7.G.1.2

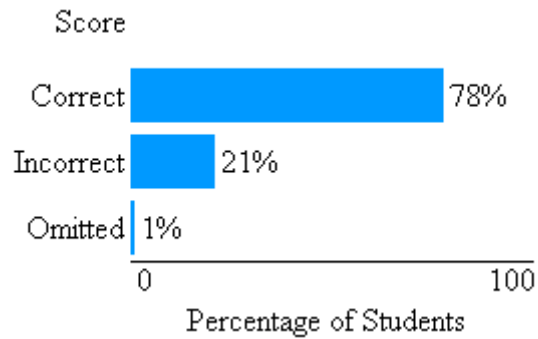
Description: Calculate the measure of an angle in a triangle

Difficulty: Easy

Complexity: Low

The correct answer is C

National Data



Question 4, MACC.7.G.1.1 and MACC.7.RP.1.3

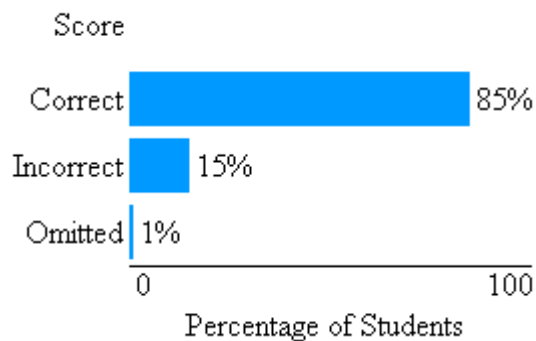
Description: Find actual dimensions of room drawn to scale

Difficulty: Easy

Complexity: Low

The correct answer is E

National Data



Question 5, MASS.4.G.1.1, MACC.912.G-CO.3.10, MACC.912.G-C.1.2, and MACC.912.G-SRT.2.5

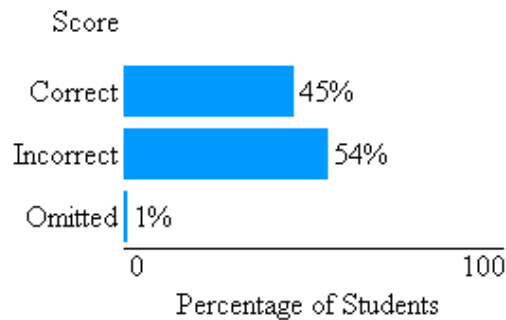
Description: Identify a 90-degree angle in a figure

Difficulty: Medium

Complexity: Low

The correct answer is **B**

National Data



Question 6, MACC.4.MD.1.3 and MACC.8.EE.1.2

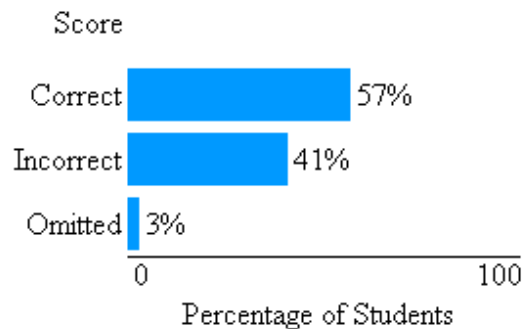
Description: Find the length of the sides of a square

Difficulty: Medium

Complexity: Moderate

The correct answer is **B**

National Data



Question 7, MACC.912.G-SRT.3.6 and MACC.912.G-SRT.3.8

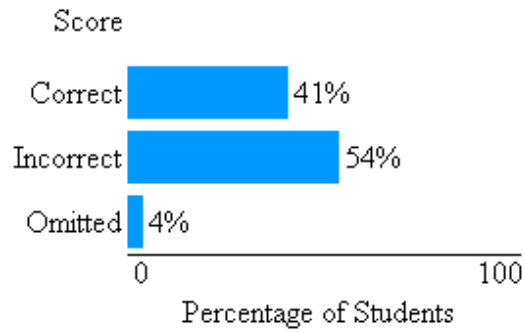
Description: Solve a problem using trigonometry

Difficulty: Medium

Complexity: Moderate

The correct answer is **C**

National Data



Question 8, MACC.7.G.2.6

Description: Find range for area given precision of linear measurements

Difficulty: Hard

Complexity: Moderate

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	23%
A	14%
B	14%
C	21%
E	27%
Omitted	1%

Question 9, MACC.912.G-SRT.3.6 and MACC.912.G-SRT.3.8

Description: Use trigonometry to find height of object

Difficulty: Hard

Complexity: Low

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	24%
A	8%
C	24%
D	30%
E	11%
Omitted	2%

Question 10, MACC.6.EE.1.1, MACC.6.EE.1.2, and MACC.6.EE.3.9

Description: Solve a multi-step problem with a rectangle and sphere

Difficulty: Medium

Complexity: Moderate

Solution:

Part (a) $2x$

Part (b) $2x^2$ or $x(2x)$ or $(2x)x$ or $x \cdot 2x$ or $2x \cdot x$

Part (c) $4\pi r^2 = 4\pi(2)^2 = 16\pi$

$16(3.14)$ gives 50.2 or 16π gives 50.3

Score as correct 16π or any value in the range 50.2 to 50.3, inclusive.

Part (d) $2x^2 = 50.2$ $2x^2 = 50.3$

$x^2 = 25.1$ $x^2 = 25.15$

$x \approx 5.01$ $x \approx 5.01$

So the rounded dimensions are 5 inches by 10 inches.

Score & Description

Extended

Correct response.

Satisfactory

Three parts correct.

Partial

Two parts correct.

Question 10, continued

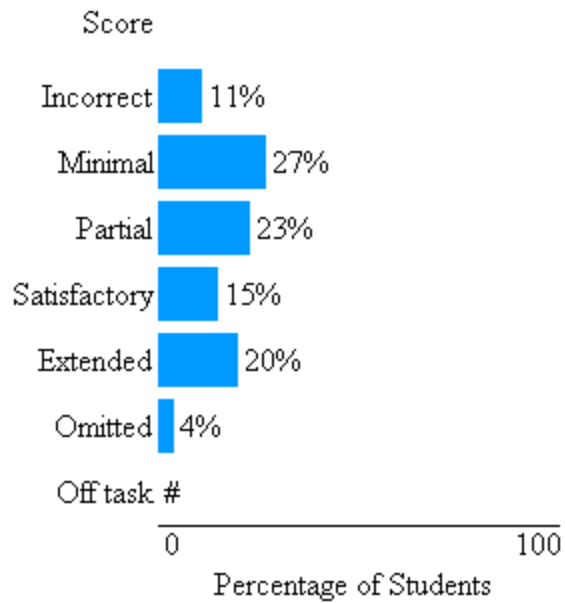
Minimal

One part correct.

Incorrect

Incorrect response.

National Data



NAEP GRADE 12 GEOMETRY

Question 1, MACC.6.G.1.1

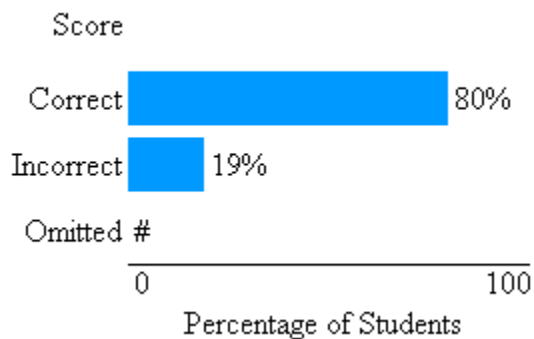
Description: Find the missing dimension of a room

Difficulty: Easy

Complexity: Low

The correct answer is **D**

National Data



Question 2, MACC.8.G.1.5 and MACC.912.G-CO.3.1

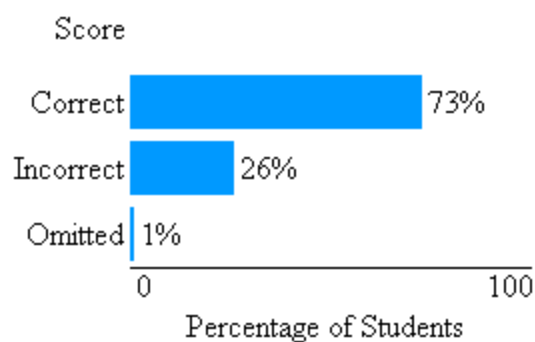
Description: Find the measure of angle between streets

Difficulty: Easy

Complexity: Low

The correct answer is **B**

National Data



Question 3, MACC.8.G.2.7

Description: Find length of side in a 30-60-90 triangle

Difficulty: Medium

Complexity: Low

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	43%
A	13%
B	26%
D	10%
E	5%
Omitted	3%

Question 4, MACC.912.G-C.1.3

Description: Analyze properties of quadrilateral inscribed in circle

Difficulty: Medium

Complexity: Moderate

Correct answer is **E**

Answers	Percent chosen by Florida's participating students
*E	61%
A	12%
B	11%
C	9%
D	7%
Omitted	1%

Question 5, MACC.8.G.2.7 and MACC.912.G-SRT.3.6

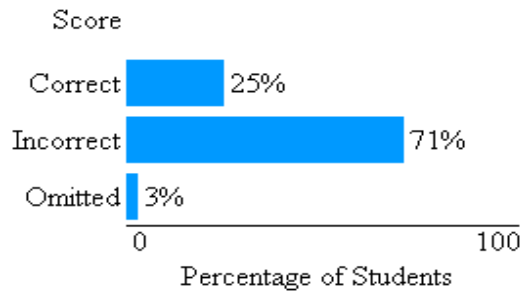
Description: Determine which triangle is not a 30-60-90 right angle

Difficulty: Hard

Complexity: Low

The correct answer is **B**

National Data



Question 6, MACC.6.G.1.4

Description: Identify the 3-D figure resulting from folding paper

Difficulty: Easy

Complexity: Low

Solution:

A pyramid.

Any of the following are also acceptable:

- a square-based pyramid
- a pyramid with a square base
- a square pyramid
- a regular square pyramid
- a rectangle pyramid

Score & Description

Correct

Correct response.

Incorrect #2

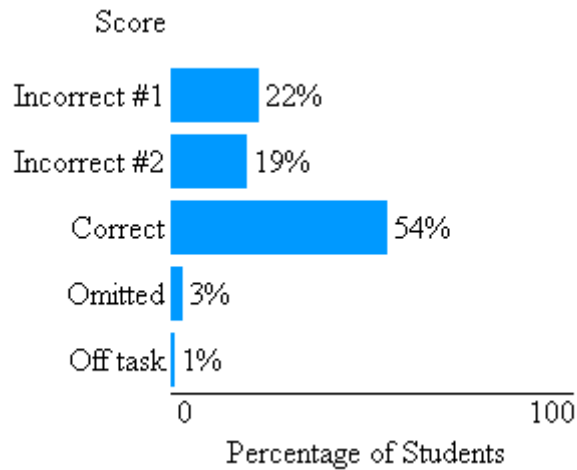
Triangle.

Incorrect #1

Any incorrect response other than as described in 2.

Question 6, continued

National Data



Question 7, MACC.6.G.1.3 and MACC.8.EE.2.1

Description: Prove that given figure is a parallelogram

Difficulty: Hard

Complexity: Moderate

Solution:

Justification:

Show that both pairs of opposite sides are parallel, that is $\overline{AB} \parallel \overline{DC}$ and that $\overline{AD} \parallel \overline{BC}$, by showing that both pairs of opposite sides have equal slopes:

$$\text{Slope of } \overline{AB} = \frac{2 - -4}{-2 - -4} = \frac{6}{2} = 3$$

$$\text{Slope of } \overline{DC} = \frac{-2 - 4}{6 - 8} = \frac{-6}{-2} = 3$$

$$\text{Slope of } \overline{AD} = \frac{-2 - -4}{6 - -4} = \frac{2}{10} = \frac{1}{5}$$

$$\text{Slope of } \overline{BC} = \frac{4 - 2}{8 - -2} = \frac{2}{10} = \frac{1}{5}$$

$$\text{Slope of } \overline{AB} = \text{slope of } \overline{DC} = 3$$

$$\text{Slope of } \overline{AD} = \text{slope of } \overline{BC} = \frac{1}{5}$$

Question 7, continued

Alternate Justifications:

Four other approaches to show that a quadrilateral is a parallelogram follow.

1. Both pairs of opposite sides are congruent, that is $\overline{AB} \cong \overline{DC}$ and $\overline{AD} \cong \overline{BC}$.

$$\begin{aligned} AB &= DC = \sqrt{40} \\ AD &= BC = \sqrt{104} \end{aligned}$$

2. Show that one pair of opposite sides are both congruent and parallel.

$$\begin{aligned} AB &= DC = \sqrt{40} \text{ and slope of } \overline{AB} = \text{slope of } \overline{DC} = 3 \\ \text{OR} \\ AD &= BC = \sqrt{104} \text{ and slope of } \overline{AD} = \text{slope of } \overline{BC} = \frac{1}{5} \end{aligned}$$

3. Show that both pairs of opposite interior angles are congruent, that is $\angle A \cong \angle C$ and $\angle B \cong \angle D$.

$$\begin{array}{l|l} \begin{aligned} AB &= DC = \sqrt{40} \\ AD &= BC = \sqrt{104} \\ \overline{BD} &\cong \overline{BD} \\ \therefore \triangle ABD &\cong \triangle CDB \\ m\angle A &= m\angle C \end{aligned} & \begin{aligned} AB &= DC = \sqrt{40} \\ AD &= BC = \sqrt{104} \\ \overline{AC} &\cong \overline{AC} \\ \therefore \triangle ABC &\cong \triangle CDA \\ m\angle B &= m\angle D \end{aligned} \end{array}$$

4. Show that the diagonals bisect each other, that is \overline{AC} bisects \overline{BD} .

$$\text{midpoint of diagonal } \overline{AC} = (2, 0)$$

$$\text{midpoint of diagonal } \overline{BD} = (2, 0)$$

NOTES:

- To be acceptable, a justification must include a complete statement or numerical demonstration of the criteria.
- A partially correct justification shows a complete and correct process but has an arithmetic error OR shows only that one set of lines are parallel or congruent, or that one set of angles are congruent, etc.

Question 7, continued

Score & Description

Correct

Complete justification

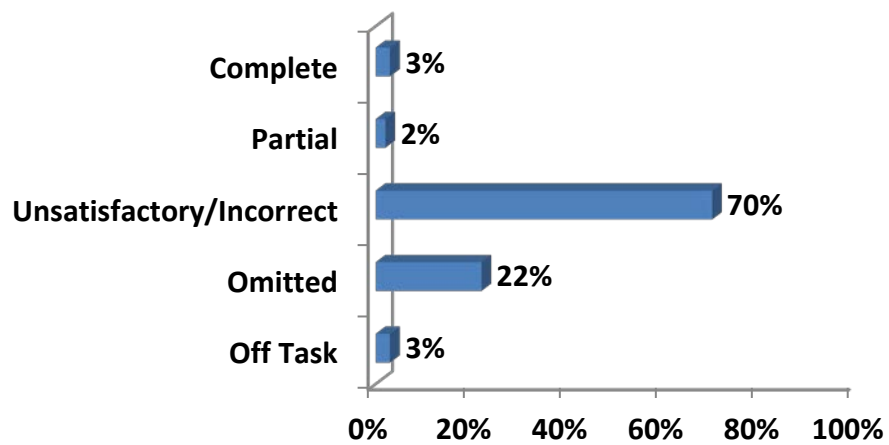
Partial

Partially correct justification

Incorrect

Incorrect response

Florida Data



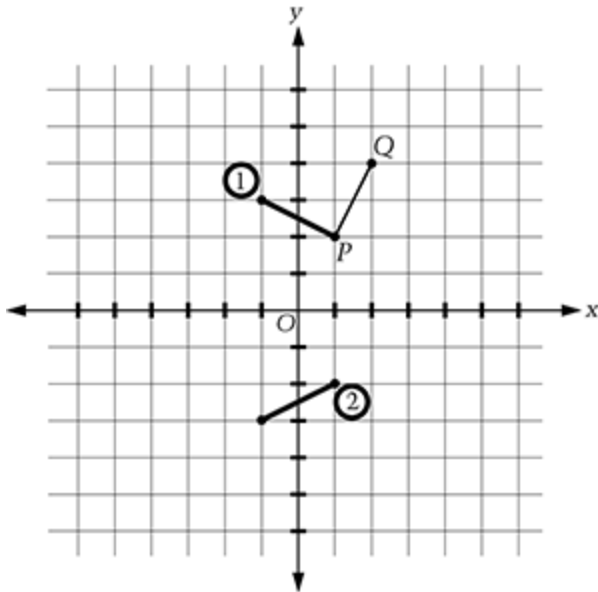
Question 8, MACC.8.G.1.3

Description: Perform multiple transformations of segment in xy -plane

Difficulty: Hard

Complexity: Low

Solution:



Notes:

- After performing the first transformation correctly, segment PQ will have coordinates $P'(1,2)$ and $Q'(-1,3)$. The coordinates are not required in the response.
- After performing the second transformation correctly, segment PQ will have coordinates $P''(1,-2)$ and $Q''(-1,-3)$. The coordinates are not required in the response.
- If the response includes dots in the figures, then the dots must contain the points listed above.

Score & Description

Correct

Both transformations performed correctly

Partial 1

First transformation performed correctly only

Partial 2

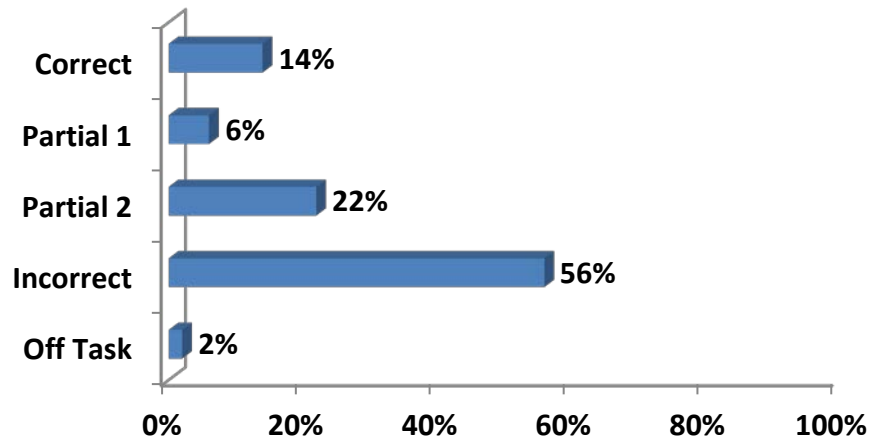
Second transformation performed correctly based on incorrect first transformation

Incorrect

Incorrect response

Question 8, continued

Florida Data



NAEP GRADE 12 DATA ANALYSIS and PROBABILITY

Question 1, MACC.6.SP.1.2 and MACC.6.SP.2.5

Description: Solve problem using data in table

Difficulty: Easy

Complexity: Low

Correct answer is **A**

Answers	Percent chosen by Florida's participating students
*A	58%
B	17%
C	4%
D	5%
E	16%

Question 2, MACC.8.SP.1.1 and MACC.8.SP.1.2

Description: Analyze correlations of two data sets in a scatterplot

Difficulty: Easy

Complexity: Low

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	59%
A	4%
B	18%
D	11%
E	6%

Question 3, MACC.8.SP.1.2 and MACC.912.S-ID.2.6

Description: Identify linear equation that best fits data in a scatterplot

Difficulty: Medium

Complexity: Moderate

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	44%
A	4%
B	12%
D	20%
E	20%
Omitted	1%

Question 4, MACC.7.SP.1.1

Description: Identify appropriate method for selecting random sample

Difficulty: Medium

Complexity: Moderate

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	59%
A	5%
B	2%
D	31%
E	2%

Question 5, MACC.7.SP.1.2

Description: Make a prediction based on data in a scatterplot

Difficulty: Medium

Complexity: Moderate

Solution: 35-year-olds

Justification:

The prediction for the 35 year old is more likely to be accurate because the age 35 is contained within the interval of the data set. The age 55 is outside the interval of the data set, so any prediction for the income of a 55 year old would be an extrapolation.

Score & Description

Correct

Correct oval filled in with acceptable justification

Partial

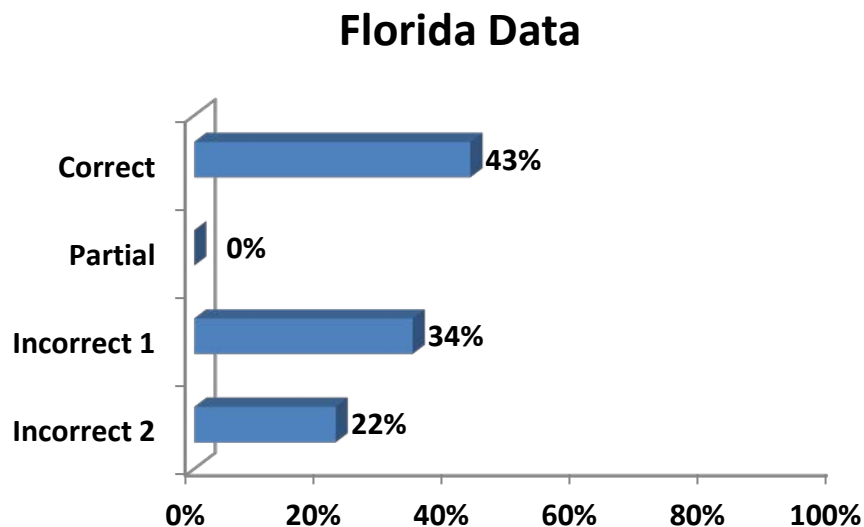
Incorrect oval or neither oval filled in with justification that supports correct oval

Incorrect 1

Correct oval filled in with incorrect or missing justification

Incorrect 2

Other incorrect responses



Question 6, MACC.7.SP.3.5, MACC.7.SP.3.8a, and MACC.7.SP.3.8b

Description: Calculate probability of independent events

Difficulty: Hard

Complexity: Low

Solution:

Answer: 87% or 0.87 (Accept answers from 0.86 to 0.87, inclusive.)

Solution (not required in response):

$$0.95 \times 0.93 \times 0.98 = 0.8658 \approx 0.87$$

Score & Description

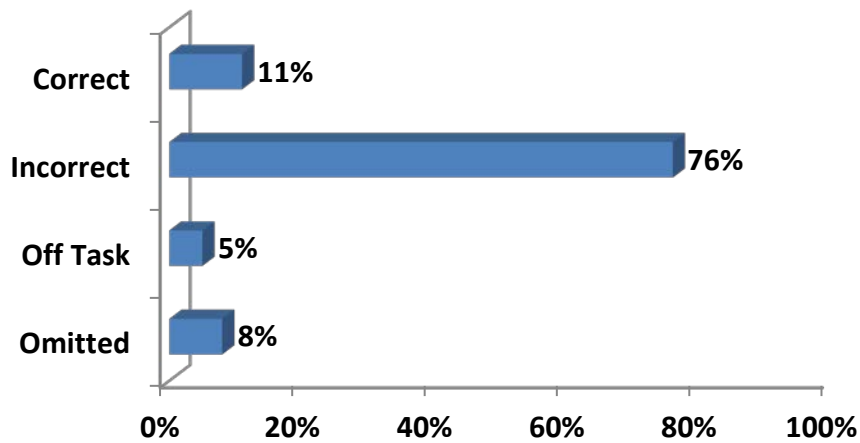
Correct

Answer of 87%

Incorrect

Incorrect response

Florida Data



Question 7, MACC.6.RP.1.3c

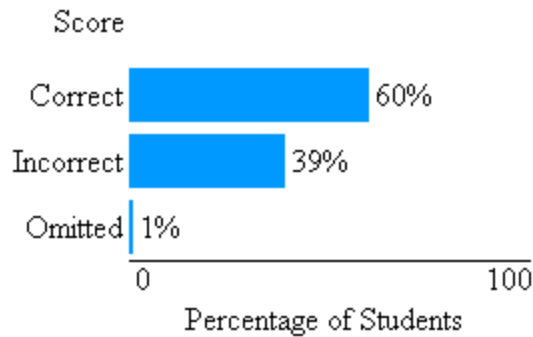
Description: Determine the type of graph to best represent a situation

Difficulty: Easy

Complexity: Low

The correct answer is **A**

National Data



Question 8, MACC.7.SP.3.5

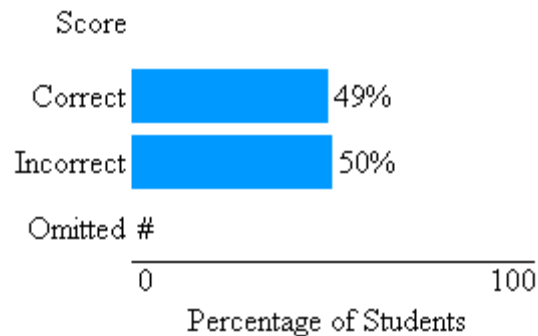
Description: Determine conditional probability from two-way table

Difficulty: Medium

Complexity: Low

The correct answer is **A**

National Data



Question 9, MACC.6.RP.1.3c

Description: Solve a data-related problem and justify the answer

Difficulty: Medium

Complexity: Low

Solution:

Answer should be the number of kept reservations above 10 minus 10, with justification. (i.e., if there are 12 kept reservations, then there are $12 - 10 = 2$ people who cannot be seated).

Justification must demonstrate either directly or indirectly that the van can seat up to ten people.

The driver is not counted as part of the ten passengers/seats.

Score & Description

Correct

Correct response with justification.

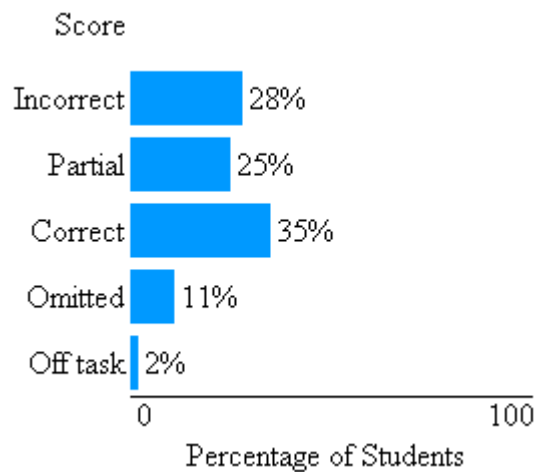
Partial

Correct response, but with incomplete or no justification.

Incorrect

Incorrect response.

National Data



Question 10, MACC.6.SP.1.2 and MACC.7.RP.1.2

Description: Use survey results to make an inference

Difficulty: Hard

Complexity: Moderate

Score & Description

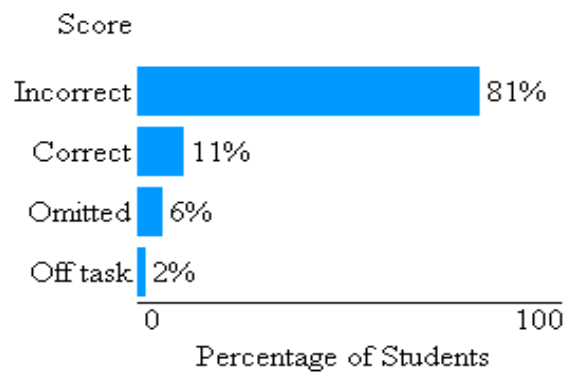
Correct

Correct response

Incorrect

Incorrect response

National Data



Question 11, MACC.7.SP.3.8b and MACC.912.S-CP.1.1

Description: Solve a problem involving color patterns

Difficulty: Medium

Complexity: Moderate

Since rotations are not considered different, the possible combinations of red and green squares are as follows:

Tray	4 Red	3 Red	2 Red	1 Red	0 Red
Colors	0 Green	1 Green	2 Green	3 Green	4 Green
Possible Patterns	1	1	2	1	1

- 6 different color patterns are possible

Question 11, continued

Score & Description

Extended

Correct Response. Student finds all 6 possible color patterns (response must include the given pattern along with the other five patterns) with no repeats or contradictory information.

Note: With any number of repeats the maximum score is 4.

Satisfactory

Has 4 or 5 correct color patterns that are different than the given pattern.

Partial

Has 2 or 3 correct color patterns that are different than the given pattern.

Minimal

Has 1 correct color pattern that is different than the given pattern.

OR

States that there are 6 possible color patterns with no or incomplete work.

Incorrect

Incorrect response (Includes only repeating the given pattern).

National Data

