NSCAS

NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

2015 NSCAS–Alternate Assessment Item and Scoring Sampler

Mathematics (NSCAS–AAM)

High School

Assessments for the Nebraska Student-Centered Assessment System are administered by the Nebraska Department of Education (NDE)
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GENERAL INTRODUCTION

The Nebraska Department of Education provides districts and schools with tools to assist in delivering focused instructional programs aligned to the state assessment system. These tools include Table of Specifications documents, administration manuals, and content-based item and scoring samplers. This Item and Scoring Sampler is a useful tool for Nebraska educators in the preparation of local instructional programs and the statewide NeSA-Mathematics Alternate Assessment.

SAMPLER CONTENTS

This sampler contains test questions (items) that have been written to align to the assessment extended indicators that are based on the Nebraska College- and Career-Ready Mathematics Standards. The test questions provide an example of the types of questions that will appear on an operational, College- and Career-Ready NeSA-Alternate Assessment in Mathematics. All sample test questions have been through a rigorous review process to ensure alignment with the assessment extended indicators.

PURPOSE AND USES

The purpose of the sampler is to expose teachers and administrators to new items and to show how these items align to the revised Nebraska College- and Career-Ready Mathematics Extended Standards.

DOK

In addition to being aligned to the standards, the sample items included in this sampler were also developed with a particular emphasis on cognitive complexity, or Depth of Knowledge (DOK). The DOK level is also provided for each item in this sampler in the Item Information Table. DOK measures the level of cognitive demand required to complete an assessment item. The following descriptions show the expectations of the DOK levels in greater detail. Four levels of DOK are used for this analysis. The NeSA-Alt assessments include items written at levels 1 and 2. Levels 3 and 4 items are not included. In addition, the NeSA-Alt items are classified based on DOK stages—subsets of the four DOK levels. The stages include responding, reproducing, recalling at DOK 1, and basic reasoning at DOK 2.

MATHEMATICS LEVEL 1-STAGE 1: RESPONDING TO MATHEMATICAL FEATURES

Level 1-Stage 1 requires the ability to respond to, indicate, or acknowledge mathematical features. Some examples that represent, but do not constitute all of, Level 1-Stage 1 performance are:

- Students are able to recognize that there is a difference in patterns.
- Students respond to math ideas using appropriate vocabulary.

MATHEMATICS LEVEL 1-STAGE 2: REPRODUCE MATHEMATICAL FEATURES

Level 1-Stage 2 requires students to display the ability to copy, replicate, repeat, re-enact, mirror, or match mathematical features. Some examples that represent, but do not constitute all of, Level 1-Stage 2 performance are:

- Students write numbers accurately in a variety of contexts.
- Students accurately sort shapes into basic groups.
- Students accurately identify location terms when prompted (i.e., next to, between, over, under).

MATHEMATICS LEVEL 1-STAGE 3: RECALLS INFORMATION ABOUT MATHEMATICAL FEATURES

Level 1-Stage 3 requires the ability to recite or recall facts or information, using simple one-step procedures, and computing simple algorithms. Some examples that represent, but do not constitute all of, Level 1-Stage 3 performance are:

- Students locate a pattern to solve problems.
- Students measure lengths using feet and yards.
- Students use a calculator or concrete objects to add and subtract.

MATHEMATICS LEVEL 2-STAGE 4: BASIC REASONING

Level 2-Stage 4 requires students to make decisions of how to approach a problem. It requires students to compare, classify, organize, estimate, or order data. This typically involves two-step procedures. Some examples that represent, but do not constitute all of, Level 2-Stage 4 performance are:

- Students draw a two-dimensional representation of a three-dimensional object.
- Students evaluate an expression that requires two or more operations.
- Students identify characteristics of a number set (e.g., How many numbers are even?).

ITEM FORMAT AND SCORING GUIDELINES

The Nebraska College- and Career-Ready Alternate Assessment in Mathematics has one type of test question. Each assessment incorporates multiple-choice (MC) items to assess the Nebraska College- and Career-Ready Mathematics Extended Standards. Students are required to select a correct answer from three response choices with a single correct answer. MC items are used to assess a variety of skill levels in relation to the tested extended standards.

MULTIPLE CHOICE (MC)

All MC items have three answer choices, including two distractors and one correct answer. Distractors represent common misconceptions, incorrect logic, common misinterpretations, unsound reasoning, casual reading, etc. A correct response to an MC item is worth one point.

DESCRIPTION OF SAMPLE ITEMS

Sample items are provided in this sampler, along with any related stimulus information. Before each test item is an item information table. It is followed by the administrator's directions and then the student view of the item.

Example Response Item Information Table

<table>
<tr><th colspan="3">Item Information</th></tr>
<tr><td>Alignment</td><td>Assigned Extended Indicator</td><td>Assigned extended indicator definition</td></tr>
<tr><td>Answer Key</td><td>Correct Answer</td><td rowspan="3">Option Annotations

Brief answer analysis or rationale</td></tr>
<tr><td>Depth of Knowledge</td><td>DOK Level, Stage</td></tr>
<tr><td>Focus</td><td>Skill/Task</td></tr>
</table>

ADDITIONAL INFORMATION

For more information related to the Nebraska plan and schedule for making the transition to NeSA-Alternate Mathematics, see http://www.education.ne.gov/Assessment and select the link on the left titled "CCR Math Transition".

ITEM INFORMATION AND QUESTIONS

Item Information		
Alignment	MAE.11.1.1.a	Sort fractions, decimals, and whole numbers by type (e.g., $\frac{3}{5}$, 4, 1.7).
Answer Key	A	**Option Annotations**
Depth of Knowledge	1, 3	Option A is correct. The number 3.7 is a decimal. Options B and C are incorrect. Option B shows a fraction. Option C shows a whole number. Students may choose these options if they do not recognize representations of fractions, decimals, and whole numbers.
Focus	Sorting Fractions, Decimals, and Whole Numbers	

Administrator's Test Booklet	**Indicator MAE.11.1.1.a Numeric Relationships DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here are some numbers.** *Indicate.*
ASK	**Which number is a decimal?** *Indicate and read answers.* A. **three point seven** B. **one-half** C. **eight**

Question 1

3.7

$\frac{1}{2}$

8

Item Information		
Alignment	MAE.11.1.2.b	Rewrite a repeated multiplication problem as an exponential expression with a whole number base and a whole number exponent (e.g., $3 \times 3 \times 3 \times 3 = 3^4$).
Answer Key	B	**Option Annotations** Option B is correct. The exponential expression 3^2 represents 3×3. Options A and C are incorrect. Students may choose these options if they do not understand the connection between repeated multiplication and exponential notation.
Depth of Knowledge	2, 4	
Focus	Repeated Multiplication as Exponential Expression	

Administrator's Test Booklet	**Indicator MAE.11.1.2.b** **Exponents** **DOK Level 2, Stage 4**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**This says 3 × 3.** *Indicate.*
ASK	**Which is the same as 3 × 3?** *Indicate and read answers.* A. **3** B. **3 squared** C. **3 cubed**

Question 2

3×3

3 3^2 3^3

Item Information		
Alignment	MAE.11.1.2.c	Given a real-world problem, identify an operation that leads to a solution.
Answer Key	C	**Option Annotations** Option C is correct. The students will eat 20 × 2 = 40 hotdogs. Options A and B are incorrect. Students may choose these options if they do not recognize multiplication in real-world contexts.
Depth of Knowledge	2, 4	
Focus	Identify Operation Given Real-World Problem	

Administrator's Test Booklet	**Indicator MAE.11.1.2.c** **Method of Computation** **DOK Level 2, Stage 4**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Twenty students are going to the zoo. They each eat two hotdogs.**
ASK	**Which shows how to find the total number of hotdogs eaten?** *Indicate and read answers.* A. **20 – 2** B. **20 + 2** C. **20 × 2**

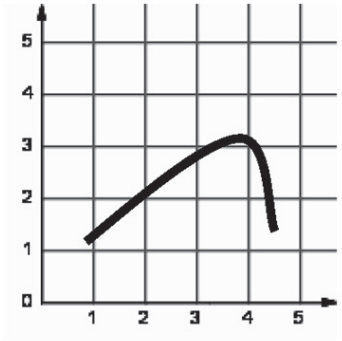
Question 3

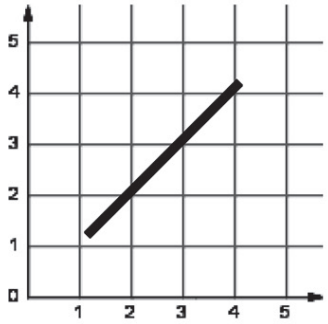
20-2 20+2 20x2

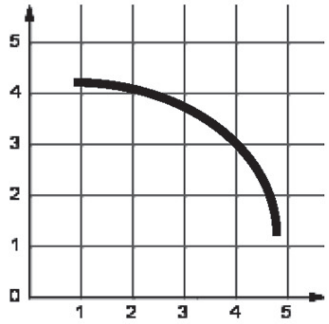
Item Information		
Alignment	MAE.11.2.1.c	Identify a linear function from a graph.
Answer Key	B	**Option Annotations** Option B is correct. The graph shows a line segment. Options A and C are incorrect. Students may choose these options if they do not know the definition of a linear function.
Depth of Knowledge	1, 3	
Focus	Identifying Linear Functions	

Administrator's Test Booklet	**Indicator MAE.11.2.1.c** **Linear Relationships** **DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here are three graphs.** *Indicate.*
ASK	**Which graph is linear?** *Indicate (but do not read) answers.* A. **graph A** B. **graph B** C. **graph C**

Question 4



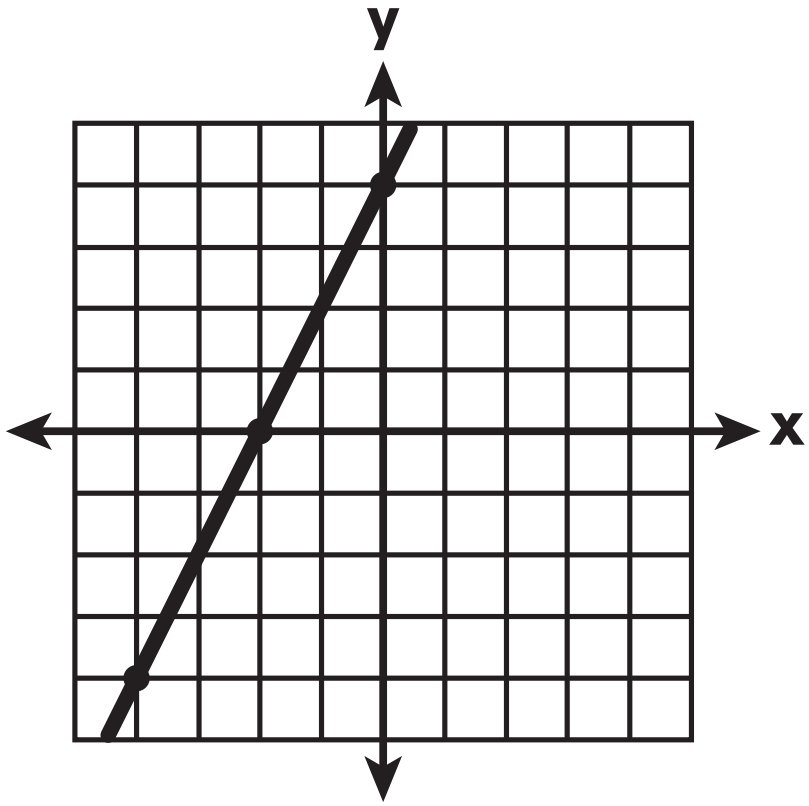




Item Information		
Alignment	MAE.11.2.1.g	Use the graph of a linear function to locate the ordered pair where $y = 0$.
Answer Key	B	**Option Annotations**
Depth of Knowledge	1, 3	Option B is correct. The graph of the line crosses the *x*-axis at (–2, 0) and the *y*-coordinate of the ordered pair is 0. Options A and C are incorrect. Option A shows a point on the line. Option C shows the *y*-intercept. Students may choose these options if they reverse *x*- and *y*-values or do not understand how to interpret a graphical representation of a linear function.
Focus	Locating *y*-intercept of Graph of Linear Function	

Administrator's Test Booklet	**Indicator MAE.11.2.1.g Linear Function/Ordered Pair DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here is a graph of a linear function.** *Indicate.*
ASK	**Which point on the graph has *y* equal to zero?** *Indicate and read answers.* A. **(–4, –5)** B. **(–2, 0)** C. **(0, 4)**

Question 5



(–4,–5) **(–2,0)** **(0,4)**

Item Information		
Alignment	MAE.11.2.2.a	Convert equivalent rate using money.
Answer Key	B	**Option Annotations** Option B is correct. There are 15 pennies, and one dime and one nickel have a total of 15 cents. Options A and C are incorrect. Students may choose these options if they do not know the values of the coins.
Depth of Knowledge	2, 4	
Focus	Converting Equivalent Rates Using Money	

Administrator's Test Booklet	**Indicator MAE.11.2.2.a** **Equivalent Rates** **DOK Level 2, Stage 4**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Look at the pennies.** *Indicate.*
ASK	**Which coin combination is the same amount as the pennies?** *Indicate and read answers.* A. **one dime** B. **one dime, one nickel** C. **one dime, two nickels**

Question 6


IN GOD WE TRUST
LIBERTY
1991


LIBERTY
IN GOD WE TRUST
P
1991
IN GOD WE TRUST
LIBERTY • 1991


LIBERTY
IN GOD WE TRUST
P
1991
IN GOD WE TRUST
LIBERTY • 1991

Item Information		
Alignment	MAE.11.2.2.d	Add two linear expressions (e.g., $(2x + 1) + (3x + 2) = 5x + 3$).
Answer Key	B	**Option Annotations** Option B is correct. The sum of $5x + 7x = 12x$. Options A and C are incorrect. Students may choose these answers if they do not understand how to combine like terms.
Depth of Knowledge	1, 3	
Focus	Adding Two Linear Expressions	

Administrator's Test Booklet	**Indicator MAE.11.2.2.d Linear Expressions DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here is an equation.** *Indicate.*
ASK	**What is the sum of $5x + 7x$?** A. **$2x$** B. **$12x$** C. **$14x$**

Question 7

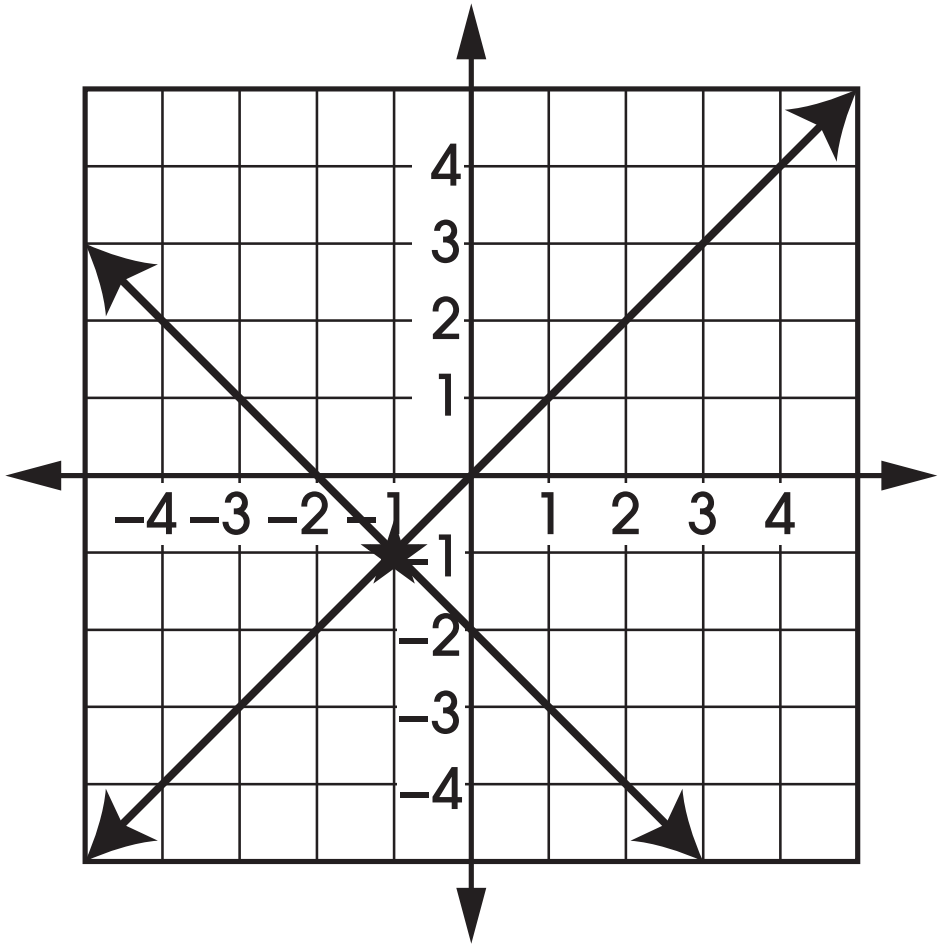
$5x + 7x =$ _____

2x **12x** **14x**

Item Information		
Alignment	MAE.11.2.2.h	Identify the ordered pair of the graphical solution to a system of two linear equations.
Answer Key	A	**Option Annotations**
Depth of Knowledge	2, 4	Option A is correct. The lines intersect at the star located at (–1, –1). Options B and C are incorrect. Option B shows an ordered pair of a point on one of the lines. Option C shows the ordered pair of the reflection of the star over the *y*-axis. Students may choose these options if they do not know how to identify the solution to a system of equations on a graph, or if they do not know how to interpret ordered pairs.
Focus	Identifying Ordered Pair of Solution to System of Equations	

Administrator's Test Booklet	**Indicator MAE.11.2.2.h** **Intersecting Lines** **DOK Level 2 , Stage 4**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here is a graph of two linear equations.** *Indicate.* **There is a star at the intersection of the two equations.** *Indicate.*
ASK	**What are the coordinates of the star?** *Indicate and read answers.* A. **(–1, –1)** B. **(–2, 0)** C. **(1, –1)**

Question 8

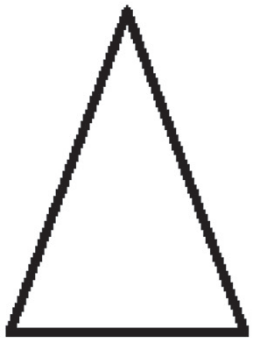


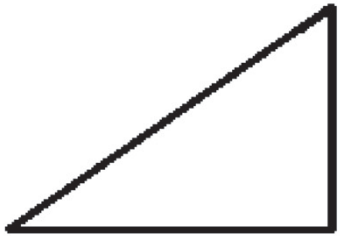
(–1, –1) **(–2, 0)** **(1, –1)**

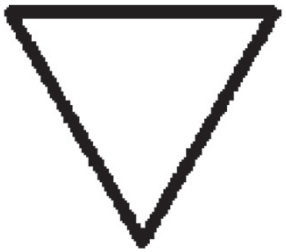
Item Information		
Alignment	MAE.11.3.1.d	Distinguish between right triangles and non-right triangles.
Answer Key	B	**Option Annotations**
Depth of Knowledge	1, 3	Option B is correct. The triangle has a right angle. Options A and C are incorrect. Option A shows an isosceles triangle. Option C shows an equilateral triangle. Students may choose these options if they confuse the names of the triangles.
Focus	Identifying Right Triangles	

Administrator's Test Booklet	**Indicator MAE.11.3.1.d** **Right Triangles** **DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here are three triangles.** *Indicate.*
ASK	**Which triangle is a right triangle?** *Indicate (but do not read) answers.* A. *not a right triangle* B. *right triangle* C. *not a right triangle*

Question 9



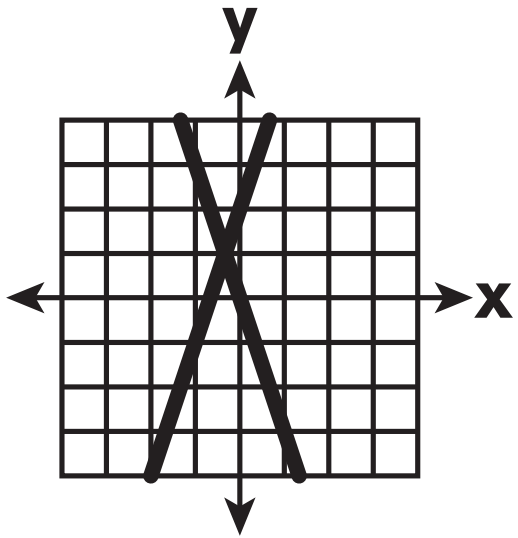


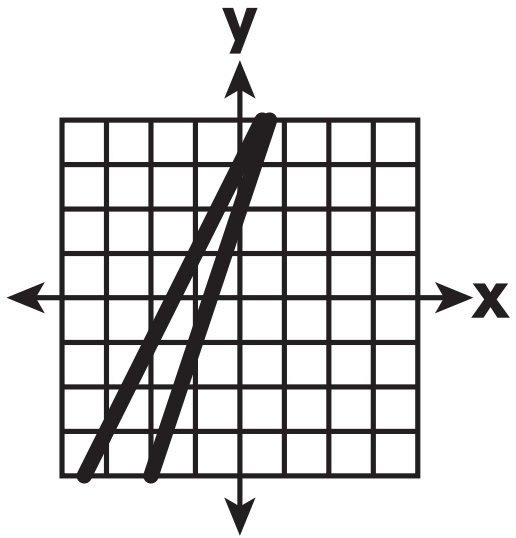


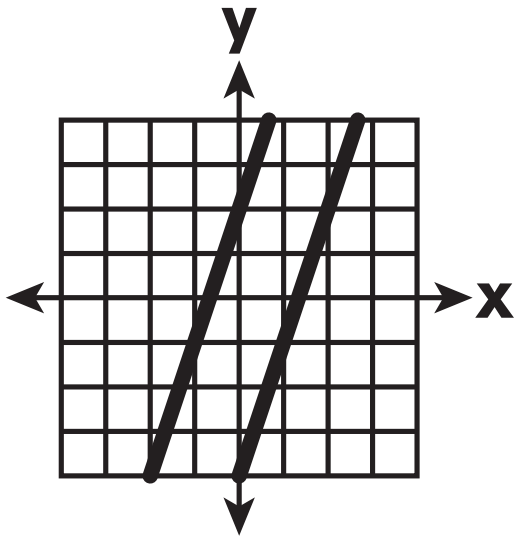
Item Information		
Alignment	MAE.11.3.2.c	Identify graphs of linear equations that have parallel lines or same slopes.
Answer Key	C	**Option Annotations** Option C is correct. The graph shows two lines with the same slope of 3. Options A and B are incorrect. Students may choose these options if they do not know the definition of parallel lines.
Depth of Knowledge	1, 3	
Focus	Identifying Graphs of Parallel Lines	

Administrator's Test Booklet	**Indicator MAE.11.3.2.c** **Linear Equations/Parallel Lines** **DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here are some graphs of linear equations.** *Indicate.*
ASK	**Which graph shows two lines with the same slope?** *Indicate.* A. **graph A** B. **graph B** C. **graph C**

Question 10







Item Information		
Alignment	MAE.11.4.2.a	Find the mean and median of an odd-numbered set of ordered data.
Answer Key	A	**Option Annotations** Option A is correct. The median or middle number in the list is 6. Options B and C are incorrect. Students may choose these options if they do not know how to find the median of a data set.
Depth of Knowledge	1, 3	
Focus	Median	

Administrator's Test Booklet	**Indicator MAE.11.4.2.a** **Median** **DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Here are the numbers 2, 3, 6, 7, 9.** *Indicate.*
ASK	**Which number is the median or the middle number?** *Indicate and read answers.* A. **6** B. **7** C. **9**

Question 11

2 3 6 7 9

6 7 9

Item Information		
Alignment	MAE.11.4.3.c	Identify a pair of mutually exclusive outcomes.
Answer Key	B	**Option Annotations**
Depth of Knowledge	1, 3	Option B is correct. Aaron will not be able to have both a blue and green jeallybean since he can only have 1 jellybean. Option A is incorrect. Students may choose this option if they do not understand mutually exclusive outcomes.
Focus	Mutually Exclusive Outcomes	

Administrator's Test Booklet	**Indicator MAE.11.4.3.c** **Mutually Exclusive Events** **DOK Level 1, Stage 3**
Prepare	• *Place student test page in front of the student.* • *Call student's attention to the page.*
SAY	**Follow along as I read this story.** *Indicate.* **Aaron likes jellybeans.** **He likes blue and green ones the best.** **Aaron may have only one jellybean from the bag.**
ASK	**Will Aaron be able to have both a blue and a green jellybean from the bag?** *Indicate and read answers.* A. **yes** B. **no**

Question 12

Aaron likes jellybeans.
He likes blue and green ones the best.
Aaron may have only one jellybean from the bag.

yes **no**

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2016 NeSA-ALTERNATE ASSESSMENT
MATHEMATICS
ITEM AND SCORING SAMPLER 2016
GRADE 11