Directions: Answer the following question(s).

| 1 | MGSE5.MD.1 (DOK 2) |

Amber is 67 in. tall, and her brother, Paul, is 6 feet 2 in. tall. Who is taller, and by how much?

A. Amber is taller by 5 in.

B. Amber is taller by 7 in.

C. Paul is taller by 5 in.

D. Paul is taller by 7 in.

Master ID: 3037659 Revision: 2
Correct: **D**
Rubric: 1 Point(s)
Standards:
     MGSE5.MD.1

| 2 | MGSE5.MD.1 (DOK 3) |

Betsy and Owen each went for a jog on Saturday morning on the walking trail nearby. Betsy ran 3 kilometers and Owen ran 2800 meters. Who ran farther and by how much? Explain your thinking.
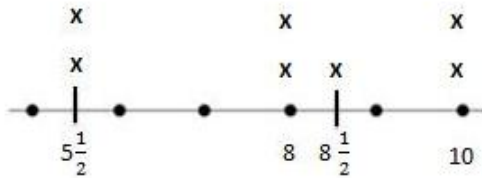
Master ID: 3037660 Revision: 5
Rubric: 2 Point(s)
MGSE5.MD.1: Convert among different-sized standard measurement units (mass, weight, length, time, etc.) within a given measurement system (customary and metric) (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-word problems.

2   **2 Point Response:**

The student correctly states that Betsy ran farther than Owen by 200 meters/.2 kilometers, and the student provides a correct and complete explanation for why 200 meters/.2 kilometers is correct.

Explanation:

Betsy ran 3 kilometers.

Owen ran 2,800 meters.

1 kilometer = 1,000 meters

Betsy ran 3,000 meters (3 kilometers).

3,000 meters (Betsy) - 2,800 meters (Owen) = 200 meters

Betsy ran 3 kilometers and Owen ran 2.8 kilometers. 3 - 2.8 = 0.2 kilometers

Betsy ran 200 meters farther, or .2 kilometers, farther than Owen

1   **1 Point Response:**

The student correctly states that Betsy ran farther than Owen by 200 meters/.2 kilometers, but the student provides an incomplete, unclear, or incorrect explanation for why 200 meters/.2 kilometers is correct.

0   **0 Point Response:**

The student responds incorrectly, and the explanation is incomplete, unclear, incorrect, or not included.

Standards:
     MGSE5.MD.1

Directions: Answer the following question(s).

3 MGSE5.MD.2 (DOK 2)

Sam made a line plot to show how far he rode his bicycle each day last week. This week he rode his bike for a total of 60 miles. Did he ride further this week or last week? Choose the statement that is the correct answer.

Sam's Distance Each Day
(x = days)

Distance in miles

A.
He rode further last week by $4\frac{1}{2}$ miles.

B.
He rode further last week by $5\frac{1}{2}$ miles.

C.
He rode further this week by $3\frac{1}{2}$ miles.

D.
He rode further this week by $4\frac{1}{2}$ miles.

Master ID:	3037661 Revision:	2
Correct:	D	
Rubric:	1 Point(s)	
Standards:		
MGSE5.MD.2		

4 MGSE5.MD.2 (DOK 2)

The school cafeteria manager ordered several pumpkins to make pumpkin pies for the annual Thanksgiving celebration. The weight of the pumpkins delivered on Monday is displayed in the line plot below. When the cafeteria manager looked at the line plot, she determined that she didn't have enough pumpkins because she would definitely need more than 4 pumpkins to make the pies she needs. Use the space below to explain to the cafeteria manager that she read the line plot incorrectly.

Weight of Pumpkins

(in pounds)
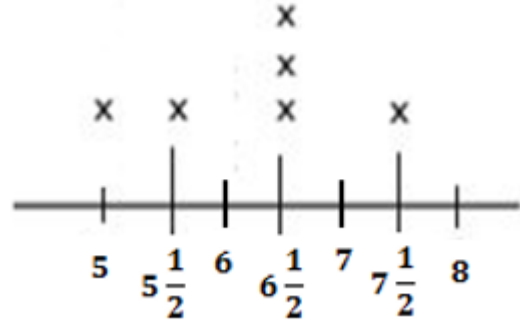
Directions: Answer the following question(s).

Master ID: 3038213 Revision: 5

Rubric: 2 Point(s)

MGSE5.MD.2: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

2   **2 Point Response:**

The student correctly states that there are 6 pumpkins on the given line plot because each x represents one pumpkin. The student also mentions that while 3 of the pumpkins weigh the same amount ($6\frac{1}{2}$ lbs.), the other 3 pumpkins weigh different amounts.

1   **1 Point Response:**

The student correctly states that there are 6 pumpkins on the given line plot because each x represents one pumpkin. However, the student does not elaborate on the weight of the pumpkins in mentioning that 3 of the pumpkins weigh the same amount ($6\frac{1}{2}$ lbs.), and the other 3 pumpkins weigh different amounts.

0   **0 Point Response:**

The student does not correctly explain why the cafeteria manager read the line plot incorrectly.

Standards:

     MGSE5.MD.2

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5   MGSE5.MD.3.a (DOK 1)

What is a unit cube and what is its purpose?

A.   A unit cube is a 2-dimensional figure in which each side length is 1 unit. It is used to measure area, and it has an area of 2 cubic units.

B.   A unit cube is 2-dimensional figure in which each side length is 1 unit. It is used to measure area, and it has an area of 1 cubic unit.

C.   A unit cube is a 3-dimensional figure in which each side length is 1 unit. It is used to measure volume, and it has a volume of 4 cubic units.

D.   A unit cube is a 3-dimensional figure in which each side length is 1 unit. It is used to measure volume, and it has a volume of 1 cubic unit.

Master ID: 3040416 Revision: 2

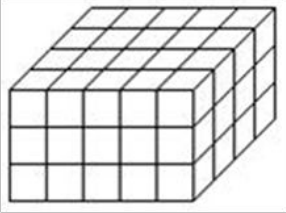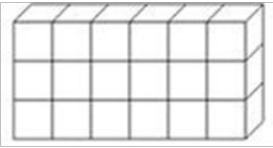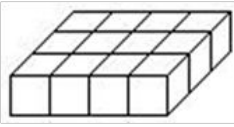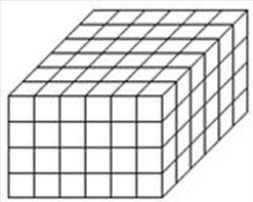Correct: D

Rubric: 1 Point(s)

Standards:

     MGSE5.MD.3a

Directions: Answer the following question(s).

6 MGSE5.MD.3.b (DOK 2)

Diamond Jewelry Company will be making miniature jewelry boxes to hold earrings. Each box is one cubic unit. Diamond Jewelry wants to package 60 jewelry boxes into a shipping box to be mailed. The jewelry boxes must fit perfectly without any gaps into the shipping box.

Which of the following is one way that the jewelry boxes could fit?

A.

B.

C.

D.

Master ID: 3040417 Revision: 6
Correct: A
Standards:
     MGSE5.MD.3b

7 MGSE5.MD.3.a (DOK 2)

In the space below, explain how a cube measuring 1 cm on each side can be used to measure the volume of a figure.

Master ID: 3040418 Revision: 4
Rubric: 2 Point(s)
MGSE5.MD.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a.) A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.

2   **2 Point Response:**

The student provides a correct and complete explanation for how a unit cube can be used to measure and determine the volume of a figure.

Explanation:

A unit cube is a 3-dimensional figure in which each side length is 1 unit. The unit cube is used to measure volume because the volume of a figure is length x width x height. The unit cube has a volume of 1 cubic unit. The volume of a figure can also be determined by counting the number of unit cubes in the figure.

1   **1 Point Response:**

The student provides a partially correct explanation for how a unit cube can be used to measure and determine the volume of a figure.

0   **0 Point Response:**

The student provides an incomplete/incorrect explanation for how a unit cube can be used to measure and determine the volume of a figure.

Standards:
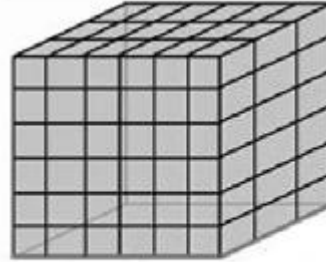   MGSE5.MD.3a

Directions: Answer the following question(s).

| 8 | MGSE5.MD.3.b (DOK 2) |

Marco packed a box with several unit cubes without gaps or overlaps. He then emptied the box and counted the cubes. What does that tell him about the box?

Master ID: 3040419 Revision: 4
Rubric: 2 Point(s)

MGSE5.MD.3.b: Recognize volume as an attribute of solid figures and understand concepts of volume measurement. b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.

2   **2 Point Response:**

The student correctly states that counting the cubes within the box tells him the volume (space inside) of the box. The student states that volume is measured in units (inches, cm., ft., etc.) of the figure.

1   **1 Point Response:**

The student correctly states that counting the cubes within the box tells him the volume (space inside) of the box. However, the student does not explain that volume is measured in units (inches, cm., ft., etc.) of the figure.

0   **0 Point Response:**

The student responds with an explanation that is incomplete, unclear, incorrect, or not included.

Standards:
    MGSE5.MD.3b

| 9 | MGSE5.MD.4 (DOK 2) |

How does the volume of Prism A compare to the volume of Prism B?

Prism A
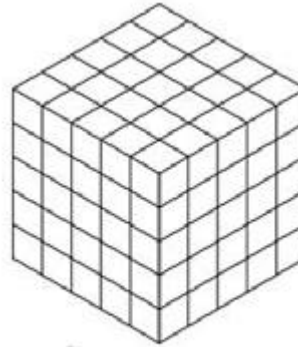
Prism B

A.   The volume of Prism A and the volume of Prism B are the same.

B.   The volume of Prism A is 13 cubic units smaller than the volume of Prism B.

C.   The volume of Prism A is 17 cubic units smaller than the volume of Prism B.

D.   The volume of Prism A is 17 cubic units larger than the volume of Prism B.

Master ID: 3037662 Revision: 2
Correct: C
Rubric: 1 Point(s)
Standards:
    MGSE5.MD.4

Directions: Answer the following question(s).

10 MGSE5.MD.4 (DOK 2)

In the space below, describe a prism with a volume of 15 cubic units and give an example of its dimensions.

Master ID:	3038214 Revision:	4
Rubric:	2 Point(s)	

MGSE5.MD.4: Measure volume by counting unit cubes, using cubic cm., cubic in., cubic ft., and improvised units.

2   **2 Point Response:**

The student correctly states that the prism would hold 15 unit cubes without gaps or overlays and be completely filled. The student also provides the dimensions of a prism that would have a volume of 15 unit cubes, such as 3 x 5 x 1.

1   **1 Point Response:**

The student correctly states that the prism would hold 15 unit cubes without gaps or overlays and be completely filled. However, the student does not provide the dimensions of a prism that would have a volume of 15 unit cubes, such as 3 x 5 x 1.

0   **0 Point Response:**

The student responds incorrectly, and the explanation and dimensions are incomplete, unclear, incorrect, or not included.

Standards:
    MGSE5.MD.4

11 MGSE5.MD.5.a (DOK 2)

Which rectangular prism has the same volume as the rectangular prism below?


A.

10 m
4 m
10 m

B.

8 m
8 m
3 m

C.

2 m
3 m
4 m

D.

2 m
12 m
4 m
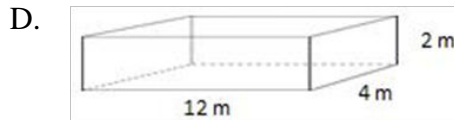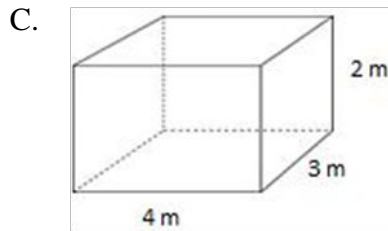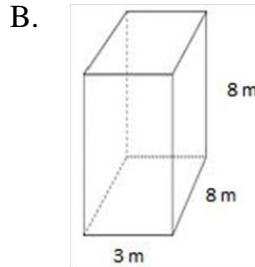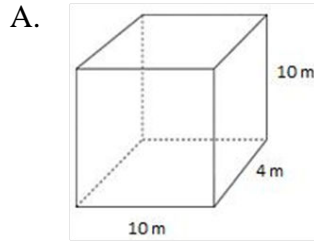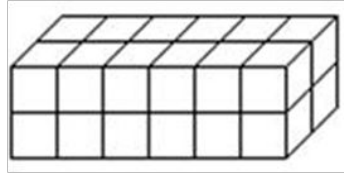
Master ID:	3037663 Revision:	2
Correct:	C	
Rubric:	1 Point(s)	

Standards:
    MGSE5.MD.5
    MGSE5.MD.5a

Directions: Answer the following question(s).

12 | MGSE5.MD.5.b (DOK 2)

Monique wants to find the volume of her toy box, which is a rectangular prism. She filled the bottom of the toy box with wooden cubes that measure 1 centimeter on a side and found that 15 rows of 10 cubes fit perfectly.
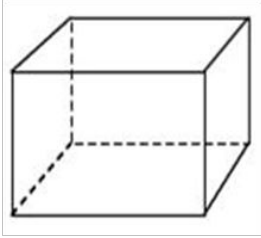
Unfortunately, she does not have any more cubes to fill the toy box.

How could Monique determine the volume of the toy box?

A.   Monique could multiply 10 cm x 15 cm to get the volume of the toy box.

B.   Monique could add the 15 rows of 10 cubes to get the volume of the toy box.

C.   Monique could use cubes to determine the height of the prism, then multiply that number times the base area to get the volume of the toy box.

D.   Monique could add 15 cm for the bottom, 10 cm for the right side, 15 cm for the top, and 10 cm for the left side to find the volume.

Master ID:	3037664 Revision:	6
Correct:	C	
Standards:		
MGSE5.MD.5b		

13 | MGSE5.MD.5.c (DOK 2)

What is the volume of the figure below?
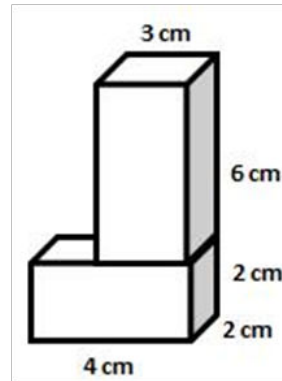
A.   16 cubic cm

B.   36 cubic cm

C.   52 cubic cm

D.   288 cubic cm

Master ID:	3037665 Revision:	3
Correct:	C	
Rubric:	1 Point(s)	
Standards:		
MGSE5.MD.5c		

Directions: Answer the following question(s).

| 14 | MGSE5.MD.5.b (DOK 3) |

A rectangular box has a volume of 30 cubic units. Determine two possible sets of dimensions that could result in this volume. Explain your answers in the space below.

Master ID: 3038221 Revision: 4
Rubric: 2 Point(s)

MGSE5.MD.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.

b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.

2   **2 Point Response:**

The student correctly states two possible sets of dimensions that result in a volume of 30 cubic units, and the student provides a correct and complete explanation for why the dimensions result in 30 cubic units.

Explanation:

There are several sets of volume dimensions that result in 30 cubic units, including 3 x 5 x 2, 15 x 1 x 2, and 10 x 3 x 1. The 2 sets the student provides must multiply to 30. Volume is length x width x height. The 3 dimensions (length x width x height) must multiply to 30.

1   **1 Point Response:**

The student correctly states two possible sets of dimensions that result in a volume of 30 cubic units, but the student provides an incorrect and incomplete explanation for why the dimensions result in 30 cubic units.
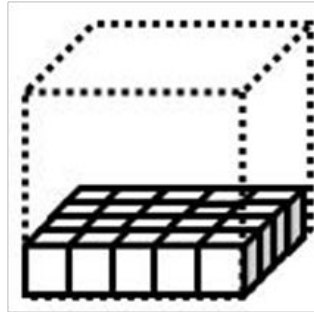
0   **0 Point Response:**

The student responds incorrectly, and the explanation is incomplete, unclear, incorrect, or not included.

Standards:
    MGSE5.MD.5b

| 15 | MGSE5.MD.5.a (DOK 3) |

Michael and his friends were trying to find the volume of the rectangular box below. Unfortunately, they used all of their unit cubes to fill the bottom of the box. How could they determine the volume without getting any more unit cubes? Explain your answer in the space below.

Directions: Answer the following question(s).

Master ID: 3038220 Revision: 4
Rubric: 2 Point(s)

MGSE5.MD.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. a.) Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.

2   **2 Point Response:**

The student correctly states that Michael and his friends can use the volume of the base with the unit cubes (1 x 4 x 5) to then determine the number of unit cubes added for the height, and then multiply that number by the base area to determine the volume of the box.

1   **1 Point Response:**

The student provides a partially correct explanation for how Michael and his friends can use the volume of the base with the unit cubes (1 x 4 x 5) to then determine the number of unit cubes added for the height. The student may not provide a correct and complete explanation for how to then determine the volume (i.e., multiply that number by the base area).

0   **0 Point Response:**

The student provides an incomplete, unclear, or incorrect explanation for how Michael and his friends can determine the volume without adding additional unit cubes.

Standards:
    MGSE5.MD.5
    MGSE5.MD.5a

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16 | MGSE5.MD.5.c (DOK 3)

William and Angela are putting boxes of animal crackers into a carton. The carton that William is using is 13 in. long, 22 in. wide, and 18 in. high. The carton Angela is using is 19 in. long, 16 in. wide, and 13 in. high. Whose carton has the greater volume? Explain how you know.

Master ID: 3038327 Revision: 5
Rubric: 2 Point(s)

MGSE5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volume of the non-overlapping parts, applying this technique to solve real-world problems.

2   **2 Point Response:**

The student correctly states that William's carton has the greater volume, and the student provides a correct and complete explanation for why his carton has the greater volume.

Explanation:

William's carton is greater; 13 x 22 x 18 = 5,148 cubic inches, and Angela's carton is 19 x 16 x 13 = 3,952 cubic inches. The student should show the math for why William's carton is greater.

1   **1 Point Response:**

The student correctly states that William's carton has the greater volume, but the student provides an incorrect and incomplete explanation for why his carton has the greater volume.

0   **0 Point Response:**

The student responds incorrectly, and the explanation for why his carton has the greater volume is incomplete, unclear, incorrect, or not included.

Standards:
    MGSE5.MD.5
    MGSE5.MD.5c