PRACTICE TEST

Mathematics

Grade 7

_____

Student Name

_____

School Name

_____

District Name

MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION

Grade 7 Mathematics

SESSION 1

This session contains 6 questions.

You may use your reference sheet during this session.
*You may **not** use a calculator during this session.*

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in your Practice Test Answer Document.

For some questions, you will mark your answers by filling in the circles in your Practice Test Answer Document. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided in your Practice Test Answer Document. Only responses written within the provided space will be scored.

Directions for Completing Questions with Answer Grids

1. Work the question and find an answer.

2. Write your answer in the boxes at the top of the grid.

3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.

4. Under each box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.

5. Do not fill in a circle under an unused box.

6. Fractions cannot be entered into an answer grid and will not be scored. Enter fractions as decimals.

7. If you need to change an answer, be sure to erase your first answer completely.

8. See below for examples on how to correctly complete an answer grid.

EXAMPLES

To answer −3 in a question, fill in the answer grid as shown below.

To answer .75 in a question, fill in the answer grid as shown below.

Go On ➡

1   What is the value of this expression?

$$|12|+|-15|$$

A. −27

B. −3

C.   3

D.   27

2   The scale on a map shows that 5 centimeters = 2 kilometers.

Part A

What number of centimeters on the map represents an actual distance of 5 kilometers?

Enter your answer in the box.

Part B

What is the actual number of kilometers that is represented by 2 centimeters on the map?

Enter your answer in the box.

3   Which expressions have products that are positive?

Select **all** that apply.

A. $(-5)(0.2)(-9)$

B. $\left(\dfrac{2}{3}\right)\left(\dfrac{3}{2}\right)\left(-\dfrac{1}{2}\right)$

C. $(6)(-3)(8)(-7)$

D. $\left(-4\dfrac{1}{3}\right)\left(-\dfrac{1}{4}\right)\left(-5\dfrac{1}{2}\right)\left(-\dfrac{7}{9}\right)$

E. $\left(\dfrac{5}{6}\right)(-10)\left(3\dfrac{4}{5}\right)(2)$

F. $(-1.2)(-3.5)(2.7)(-0.8)$

4   Jessica rented 1 video game and 3 movies for a total of $11.50.

- The video game cost $4.75 to rent.

- The movies cost the same amount each to rent.

What amount, in dollars, did Jessica pay to rent each movie?

Enter your answer in the box.

5   What value of n makes the equation below true?

$$28 + n = 0$$

Enter your answer in the box.

6   A snow day occurs when school is canceled for the day because of bad winter weather. This box shows the number of snow days at Andrew's school during each of the past six winters.

$$2, 5, 5, 3, 4, 5$$

Part A

For the past six winters, what was the median number of snow days per winter at Andrew's school? Show or explain how you got your answer.

Enter your answer and your work or explanation in the space provided.

Part B

For the past six winters, what was the mean number of snow days per winter at Andrew's school? Show or explain how you got your answer.

Enter your answer and your work or explanation in the space provided.

Part C

For the past six winters, what was the mean absolute deviation of the number of snow days per winter at Andrew's school? Show or explain how you got your answer.

Enter your answer and your work or explanation in the space provided.

Part D

Maria lives in another state. This box shows the number of snow days at Maria's school during each of the past six winters.

$$0, 2, 9, 3, 1, 3$$

At which school, Andrew's or Maria's, is the number of snow days per winter more predictable? Explain your reasoning. Use specific data from **both** schools in your explanation.

Enter your answer and your explanation in the space provided.

STOP!

Grade 7 Mathematics
SESSION 2

This session contains 6 questions.

You may use your reference sheet during this session.
You may use a calculator during this session.

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in your Practice Test Answer Document.

For some questions, you will mark your answers by filling in the circles in your Practice Test Answer Document. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided in your Practice Test Answer Document. Only responses written within the provided space will be scored.

Directions for Completing Questions with Answer Grids

1. Work the question and find an answer.

2. Write your answer in the boxes at the top of the grid.

3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.

4. Under each box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.

5. Do not fill in a circle under an unused box.

6. Fractions cannot be entered into an answer grid and will not be scored. Enter fractions as decimals.

7. If you need to change an answer, be sure to erase your first answer completely.

8. See below for examples on how to correctly complete an answer grid.

EXAMPLES

To answer −3 in a question, fill in the answer grid as shown below.

To answer .75 in a question, fill in the answer grid as shown below.

Go On ➡

7   A bottle contains 120 fluid ounces of laundry detergent. Which of the following is closest to the number of liters in 120 fluid ounces? (1 fluid ounce ≈ 0.0296 liter)

   A. 3.55 liters

   B. 4.05 liters

   C. 4.16 liters

   D. 4.47 liters

8   Misha has a cube and a right-square pyramid that are made of clay. She placed both clay figures on a flat surface.

   Misha will make slices through each figure that are parallel and perpendicular to the flat surface. Which statements are true about the two-dimensional plane sections that **could** result from one of these slices?

   Select **all** that apply.

   A. A plane section that is triangular could result from one of these slices through the cube.

   B. A plane section that is square could result from one of these slices through the cube.

   C. A plane section that is rectangular but not square could result from one of these slices through the cube.

   D. A plane section that is triangular could result from one of these slices through the pyramid.

   E. A plane section that is square could result from one of these slices through the pyramid.

   F. A plane section that is rectangular but not square could result from one of these slices through the pyramid.

9   The directions on a bottle of vinegar say, "mix 1 cup of vinegar with 1 gallon of water to make a cleaning solution." The ratio of vinegar to water is 1 to 16.

Part A

How many **cups** of water should be mixed with $\frac{1}{4}$ cup of vinegar to make the cleaning solution?

Enter your answer in the box.

Part B

How many **fluid ounces** of vinegar should be mixed with 80 fluid ounces of water to make the cleaning solution?

Enter your answer in the box.

Part C

The bottle contains 1 quart of vinegar.

What is the **total number of quarts of cleaning solution** that can be made using the entire bottle of vinegar?

Enter your answer in the box.

Part D

A spray bottle holds up to 1 cup of the cleaning solution.

When the spray bottle is full, what fraction of the cleaning solution is vinegar?

A. $\frac{1}{17}$

B. $\frac{1}{16}$

C. $\frac{15}{16}$

D. $\frac{16}{17}$

Go On ➡

10 Alexis chose a random sample of 10 jars of almonds from each of two different brands, X and Y. Each jar in the sample was the same size. She counted the number of almonds in each jar. Her results are shown in the plots.

Brand X

Number of Almonds

Brand Y
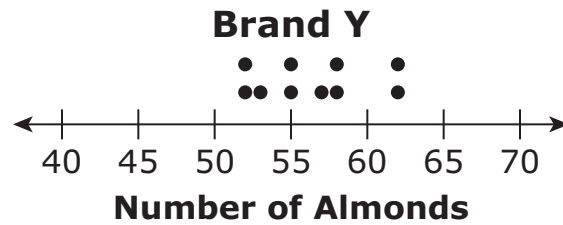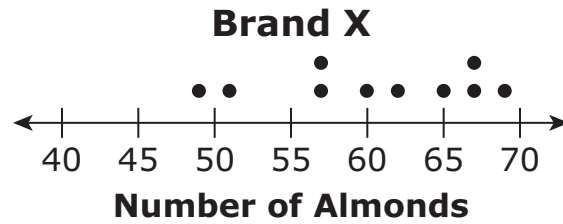
Number of Almonds

Based on the plots, which statement **best** compares the number of almonds in the jars from the two brands?

A. The number of almonds in jars from Brand X tends to be greater and more consistent than those from Brand Y.

B. The number of almonds in jars from Brand X tends to be greater and less consistent than those from Brand Y.

C. The number of almonds in jars from Brand X tends to be fewer and more consistent than those from Brand Y.

D. The number of almonds in jars from Brand X tends to be fewer and less consistent than those from Brand Y.

Go On ➡

11   A rectangular prism and its dimensions are shown.
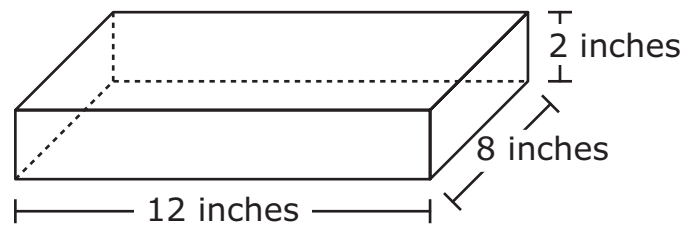
What is the volume, in cubic inches, of the rectangular prism?

Enter your answer in the box.

12   Chris made at least one error as she found the value of this expression.

$$2(-20) + 3\left[\frac{5}{4}(-20)\right] + 5\left[\frac{2}{5}(50)\right] + 4(50)$$

Step 1: $2(-20) + 3(-25) + 5(20) + 4(50)$

Step 2: $(3 + 2)(-20 + -25) + (5 + 4)(20 + 50)$

Step 3: $5(-45) + 9(70)$

Step 4: $-225 + 630$

Step 5: 405

Identify the step in which Chris made her first error. After identifying the step with the first error, write the corrected steps and find the final answer.

Enter the identified step, your work, and the final answer in the space provided.

MASSACHUSETTS COMPREHENSIVE ASSESSMENT SYSTEM

Grade 7 Mathematics

Practice Test Answer Document

School Name: _____

District Name: _____

Last Name of Student: _____

First Name of Student: _____

MARKING INSTRUCTIONS

• Use a No. 2 pencil only.

• Do not use ink, ballpoint, or felt-tip pens.

• Make solid marks that fill the circles completely.

• Erase cleanly any marks you wish to change.

• Do not make any stray marks on this form.

• Do not fold, tear, or damage this form.

1. Ⓐ Ⓑ Ⓒ Ⓓ

2. **Part A**

Part B

3. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

4.

5.

Go On ➡

6. Part A

6. Part B

Go On ➡

6. Part C

6. Part D

STOP!

7. Ⓐ Ⓑ Ⓒ Ⓓ

8. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

9. **Part A**

Part B

Part C

Part D Ⓐ Ⓑ Ⓒ Ⓓ

10. Ⓐ Ⓑ Ⓒ Ⓓ

11.

Go On ➡

12.