MSTAR PRACTICE WORKSHEET

Lesson 5-5: Determine the Volume of Rectangular Prisms

Grade 6 Mathematics · Standard 6.GR.2

Name: _____ Date: _____

These are MSTAR-style questions written for this curriculum to rehearse the format. They are not official Maryland assessment items. MSTAR — Maryland's new state test, first given in spring 2027 — uses the same kinds of questions you see here: selected response, select-all, two-part evidence questions, and written responses.

Part A — Skills Check

Warm up with the lesson's core skills — one best answer each.

Question 1 SELECTED RESPONSE · 1 POINT

What is the volume of a rectangular prism with l = 7 in, w = 3 in, h = 4 in?

(A) 14 in³

(B) 42 in³

(C) 84 in³

(D) 84 in²

Question 2 SELECTED RESPONSE · 1 POINT

A time capsule box has a volume of 120 cm³. Its length is 10 cm and width is 4 cm. What is its height?

(A) 3 cm

(B) 4 cm

(C) 6 cm

(D) 12 cm

Question 3 SELECTED RESPONSE · 1 POINT

Which unit is used for volume?

(A) Square inches (in²)

(B) Cubic inches (in³)

(C) Inches (in)

(D) Degrees (°)

Question 4 SELECTED RESPONSE · 1 POINT

Two storage bins: Bin A is 8 × 6 × 5 inches. Bin B is 9 × 4 × 7 inches. Which holds more and by how much?

(A) Bin B by 12 in^3

(B) Bin A by 12 in^3

(C) Bin B by 24 in^3

(D) They hold the same

Question 5 SELECTED RESPONSE · 1 POINT

A rectangular prism has length 8 cm, width 5 cm, and height 4 cm. What is its volume?

(A) 17 cm^3

(B) 80 cm^3

(C) 120 cm^3

(D) 160 cm^3

Question 6 SELECTED RESPONSE · 1 POINT

A box has a volume of 72 in^3. Its base is 6 in by 4 in. What is its height?

(A) 2 in

(B) 3 in

(C) 12 in

(D) 18 in

Part B — Test-Format Questions

These match the state test's formats: two-part questions, select-all, and written responses.

Question 7 TWO-PART QUESTION

Part A

A rectangular time capsule container measures 8 inches long, 5 inches wide, and 3 inches tall. What is its volume?

Fill in the bubble next to the one best answer.

(A) 16 cubic inches

(B) 40 cubic inches

(C) 120 cubic inches

(D) 158 cubic inches

Part B

Answer Part A before Part B — Part B asks about your reasoning.

Which expression shows the same volume written as base area times height?

(A) 2 × (8 × 5)

(B) (8 × 5) × 3

(C) (8 + 5) × 3

(D) 8 × (5 + 3)

Question 8 SELECT ALL THAT APPLY

Select ALL statements that correctly describe volume:

Mark the box next to EVERY answer that is true. More than one is correct.

[A] Volume is measured in cubic units.

[B] V = l × w × h for a rectangular prism.

[C] Volume can also be found as base area × height.

[D] Volume is measured in square units.

[E] Doubling only the height of a prism doubles its volume.

Part C — Show Your Thinking

Answer in writing, the way the state test's constructed responses work.

Question 9 WRITTEN RESPONSE · 2 POINTS

A box needs to hold exactly 60 cubic inches. Give three different sets of whole-number dimensions that work. Which set would make the box closest to a cube shape? Why might that matter?

Write your answer in complete sentences. Show or explain your mathematical thinking.

When you finish, check your reasoning with your teacher or family. Your teacher has the scoring guide for the written responses.