MSTAR PRACTICE WORKSHEET

Lesson 5-2: Determine the Area of Triangles

Grade 6 Mathematics · Standard 6.GR.1

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 area of a triangle with base 10 cm and height 6 cm?

(A) 16 sq cm

(B) 30 sq cm

(C) 30 cm

(D) 60 sq cm

Question 2 SELECTED RESPONSE · 1 POINT

A triangle has an area of 24 sq ft and a base of 8 ft. What is the height?

(A) 3 ft

(B) 6 ft

(C) 12 ft

(D) 16 ft

Question 3 SELECTED RESPONSE · 1 POINT

Why do we divide by 2 when finding the area of a triangle?

(A) A triangle is exactly half of a rectangle with the same base and height

(B) Triangles have 2 equal sides

(C) The base is always twice the height

(D) We always divide area formulas by 2

Question 4 SELECTED RESPONSE · 1 POINT

What is the area of a triangle with base 14 ft and height 6 ft?

(A) 20 sq ft

(B) 42 sq ft

(C) 42 ft

(D) 84 sq ft

Question 5 SELECTED RESPONSE · 1 POINT

A triangular window in the firm's lobby has a base of 10 ft and a height of 6 ft. What is its area?

(A) 16 sq ft

(B) 30 sq ft

(C) 32 sq ft

(D) 60 sq ft

Question 6 SELECTED RESPONSE · 1 POINT

A triangular roof panel on the blueprint has a base of 7 ft and a height of 4 ft. What is its area?

(A) 11 sq ft

(B) 14 sq ft

(C) 22 sq ft

(D) 28 sq ft

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 triangular garden bed has a base of 14 meters and a perpendicular height of 6 meters. What is its area?

Fill in the bubble next to the one best answer.

- (A) 10 square meters
- (B) 20 square meters
- (C) 42 square meters
- (D) 84 square meters

Part B

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

Which statement explains why the area formula for a triangle includes the factor ½?

- (A) A triangle is exactly half of a parallelogram with the same base and height.
- (B) Triangles always have three sides, so you divide by three and round.
- (C) The height of a triangle is always half of its base.
- (D) Half of any shape's area is its perimeter.

Question 8 WRITTEN RESPONSE · 2 POINTS

Type II Reasoning: The Missing One-Half

> Dev found the area of a triangle with a base of 10 cm and a height of 7 cm. He wrote: 'Area = 10 × 7 = 70 square centimeters.'

Explain Dev's misconception and give the correct area.

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

Part C — Show Your Thinking

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

Question 9 WRITTEN RESPONSE · 2 POINTS

A rectangle is 12 ft by 8 ft. A diagonal line cuts it into two triangles. What is the area of each triangle? Explain how the triangle area formula relates to the rectangle area formula.

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.