Lesson 5-2 · Session 1

Area of Triangles

Name _____ Date _____ Period _____

Maryland Standard 6.GR.1 · Learning target — I can find the area of a triangle using one half the base times the height.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- Area of a triangle = (base times height) divided by 2.
- A triangle is 'half' of a parallelogram with the same base and height.
- Watch out — the slanted side is not the height unless it meets the base at a right angle.
- Check it — a triangle's area is always half the area of the matching parallelogram.

WORKED EXAMPLE

Finding the Area of a Triangle A triangle has a base of 16 cm and a perpendicular height of 9 cm. Find the area.

Step 1 Two copies of a triangle form a parallelogram, so a triangle is half of one.

Step 2 Write the formula. $A = \frac{1}{2} \times b \times h$

Step 3 Name the parts. $b = 16$ cm $h = 9$ cm, meeting the base at a square corner

Step 4 Multiply, then halve. $16 \times 9 = 144$, and half of 144 is 72

Answer The area of the triangle is 72 square centimeters (72 cm²).

Practice

1. A triangle has a base of 10 cm and a height of 6 cm. Find its area. _____

Answer _____

SHOW YOUR THINKING

2. A triangle has a base of 9 in and a height of 4 in. Find its area.

Answer _____

SHOW YOUR THINKING

3. Explain in your own words why we divide by 2 to find the area of a triangle.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

4. Find the area of each triangle. Use A = ½ × b × h.

a. base 12 cm, height 5 cm _____ cm²
b. base 14 in., height 3 in. _____ in²
c. base 20 ft, height 7 ft _____ ft²
d. base 11 m, height 8 m _____ m²

Answer _____

SHOW YOUR THINKING

5. Sail Patch. A triangular sail patch has a base of 18 cm and a perpendicular height of 9 cm. Find its area.

Answer _____

SHOW YOUR THINKING

6. Yield Sign. A triangular yield sign has a base of 24 in. and a perpendicular height of 21 in. Find its area.

Answer _____

SHOW YOUR THINKING

7. Garden Wedge. A wedge of a garden is a right triangle. Its two legs meet at a square corner and measure 13 ft and 6 ft. Find the area of the wedge.

Answer _____

SHOW YOUR THINKING

8. A triangle has a base of 16 m and a perpendicular height of 7 m. Kwame says its area is 112 m². Explain his mistake, then show the correct area.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. A triangle has base 22 cm and height 14 cm. Find its area.

Answer _____ cm²

SHOW YOUR THINKING

10. A triangle has base 9 ft and height 12 ft. Find its area.

Answer _____ ft²

SHOW YOUR THINKING

11. Flag Panel. A triangular flag panel has base 18 in. and height 11 in. Find its area.

Answer _____ in²

SHOW YOUR THINKING

12. Find the Mistake. For base 20 m and height 7 m, Marta wrote A = 140 m². Explain the mistake and give the correct area.

Answer _____ the mistake and the area

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 5-1 Session 1. A parallelogram has base 11 in. and height 5 in. Find its area.

Answer _____

SHOW YOUR THINKING

14. From Lesson 4-2 Session 1. Write 0.45 as a percent.

Answer _____

SHOW YOUR THINKING

15. From Lesson 3-6 Session 1. Convert 4 feet to inches.

Answer _____

SHOW YOUR THINKING

Test practice

16. A triangle with base 16 m and height 5 m has area —

□ A. 21 m²	□ B. 80 m²
□ C. 40 m²	□ D. 40 m

17. The formula for a triangle's area is —

□ A. b + h	□ B. bh
□ C. 2bh	□ D. ½bh

18. A triangle with base 7 cm and height 4 cm has area —

□ A. 14 cm²	□ B. 28 cm²
□ C. 11 cm²	□ D. 14 cm

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Use perpendicular height. Check square units for area and linear units for length. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check each labeled measure and required face or region. Use square units for area and cubic units for volume.