Lesson 5-1 · Session 1

Area of Parallelograms

Name _____ Date _____ Period _____

Maryland Standard 6.GR.1 · Learning target — I can find the area of a parallelogram by multiplying the base by the perpendicular 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 parallelogram = base times height (A = b x h).
- The height must be measured perpendicular (at a right angle) to the base, not along a slanted side.
- Watch out — the slanted side is longer than the height. Using it gives an area that is too big.
- Check it — an area answer always ends in square units: cm², in², ft², m².

WORKED EXAMPLE

Finding the Area of a Parallelogram A parallelogram has a base of 14 cm. The perpendicular height to that base is 6 cm. Find the area.

Step 1 Write the formula. A = b × h

Step 2 Name the parts. base b = 14 cm perpendicular height h = 6 cm

Step 3 Use the perpendicular distance to the chosen base, not a side that is oblique to it.

Step 4 Multiply and label square units. 14 × 6 = 84

Answer The area of the parallelogram is 84 square centimeters (84 cm²).

Practice

1. A parallelogram has a base of 8 cm and a height of 5 cm. Find its area. _____

Answer _____

SHOW YOUR THINKING

2. A parallelogram has an area of 42 sq in and a base of 7 in. Find its height.

Answer _____

SHOW YOUR THINKING

3. Why can't you use the slanted side length instead of the height to find area?

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

4. Find the area of each parallelogram. Use $A = b \times h$.

a. base 9 cm, height 4 cm _____ cm^2
b. base 12 in., height 6 in. _____ in^2
c. base 15 m, height 3 m _____ m^2
d. base 11 ft, height 7 ft _____ ft^2

Answer _____

SHOW YOUR THINKING

5. Locker Magnet. A locker magnet is a parallelogram with a base of 13 cm and a perpendicular height of 9 cm. Find its area.

Answer _____

SHOW YOUR THINKING

6. Bike Path Sign. A parallelogram sign covers 132 in^2. Its base measures 12 in. Find the perpendicular height of the sign.

Answer _____

SHOW YOUR THINKING

7. Two Flags. Flag A is a parallelogram with a base of 16 ft and a height of 5 ft. Flag B is a parallelogram with a base of 10 ft and a height of 8 ft. Find each area, then tell which flag covers more cloth.
Sentence Frame: "I know this because..."

Answer _____

SHOW YOUR THINKING

8. A parallelogram has a base of 14 m, a slanted side of 10 m, and a perpendicular height of 8 m. Deshawn wrote 'A = 14 × 10 = 140 m².' Explain his mistake, then show the correct area.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. A parallelogram has a base of 20 m and a height of 11 m. Find its area.

Answer _____ m²

SHOW YOUR THINKING

10. A parallelogram has an area of 153 ft² and a height of 9 ft. Find its base.

Answer _____ ft

SHOW YOUR THINKING

11. Equal Areas? Parallelogram A has a base of 18 cm and a height of 5 cm. Parallelogram B has a base of 9 cm and a height of 10 cm. Find each area, then tell whether they are equal.

Answer _____ both areas and your comparison

SHOW YOUR THINKING

12. Tabletop. A tabletop is a parallelogram with a base of 4.5 ft and a height of 2 ft. Find its area.

Answer _____ ft²

SHOW YOUR THINKING

Spiral review

13. From Lesson 4-1. Write 45% as a fraction in lowest terms.

Answer _____

SHOW YOUR THINKING

14. From Lesson 3-6. 5 feet = _____ inches

Answer _____

SHOW YOUR THINKING

15. From Lesson 2-5. Find the range of 8, 15, 22, and 9.

Answer _____

SHOW YOUR THINKING

Test practice

16. A parallelogram has a base of 13 in. and a height of 4 in. What is its area?

□ A. 17 in²	□ B. 26 in²
□ C. 52 in	□ D. 52 in²

17. A parallelogram is measured in centimeters. Which unit is correct for its area?

□ A. cm²	□ B. cm
□ C. cm³	□ D. cm × 2

18. A parallelogram has an area of 63 m² and a base of 7 m. What is its height?

□ A. 56 m	□ B. 9 m
□ C. 441 m	□ D. 9 m²

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.