

11.2 Areas of Trapezoids, Rhombuses, and Kites

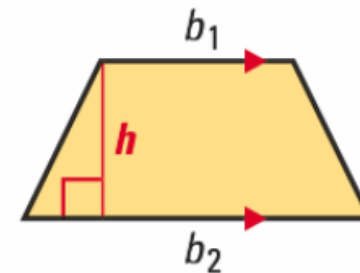
THEOREM

For Your Notebook

THEOREM 11.4 Area of a Trapezoid

The area of a trapezoid is one half the product of the height and the sum of the lengths of the bases.

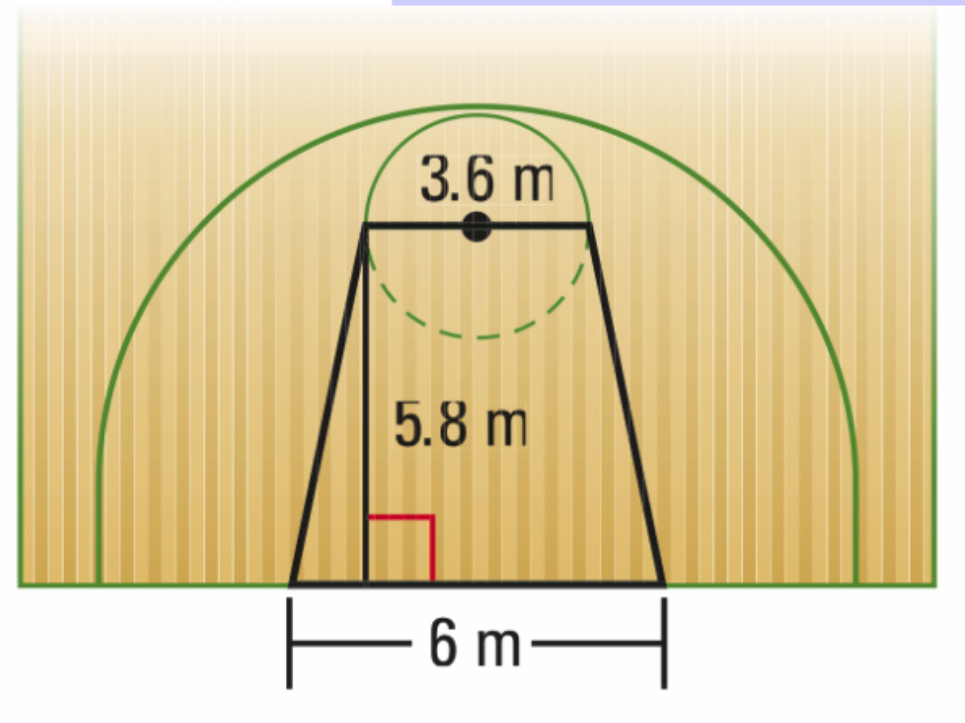
Proof: Ex. 40, p. 736



$$A = \frac{1}{2}h(b_1 + b_2)$$

EXAMPLE 1 Find the area of a trapezoid

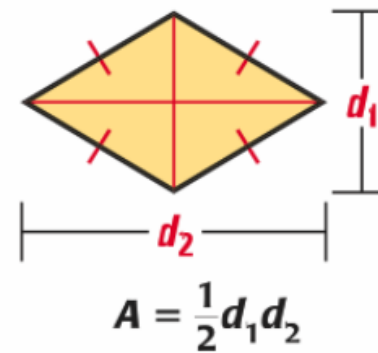
BASKETBALL The free-throw lane on an international basketball court is shaped like a trapezoid. Find the area of the free-throw lane.



THEOREMS*For Your Notebook***THEOREM 11.5 Area of a Rhombus**

The area of a rhombus is one half the product of the lengths of its diagonals.

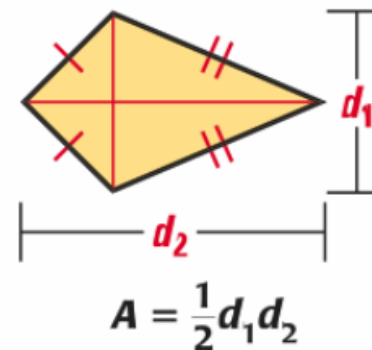
Justification: Ex. 39, p. 735



THEOREM 11.6 Area of a Kite

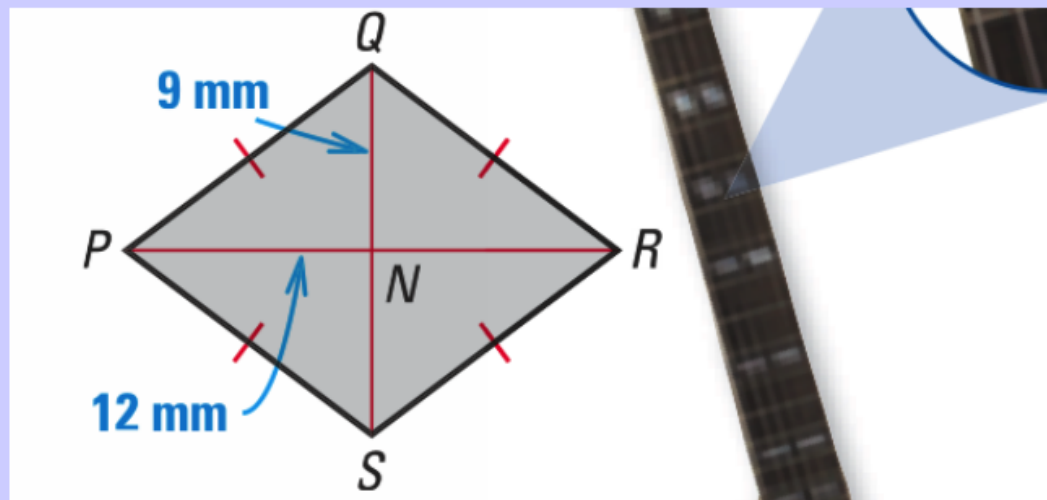
The area of a kite is one half the product of the lengths of its diagonals.

Proof: Ex. 41, p. 736

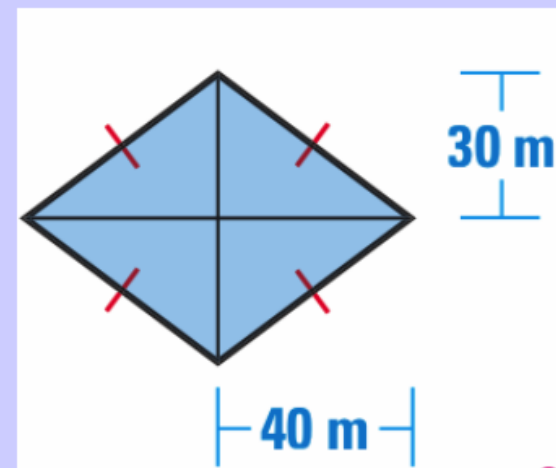
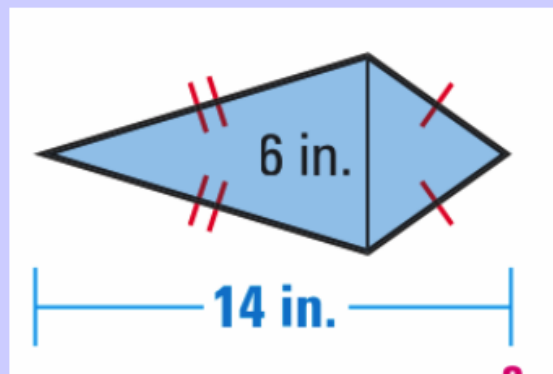
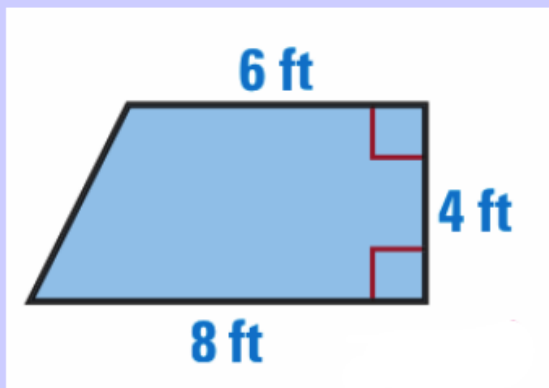


EXAMPLE 2 Find the area of a rhombus

MUSIC Rhombus $PQRS$ represents one of the inlays on the guitar in the photo. Find the area of the inlay.



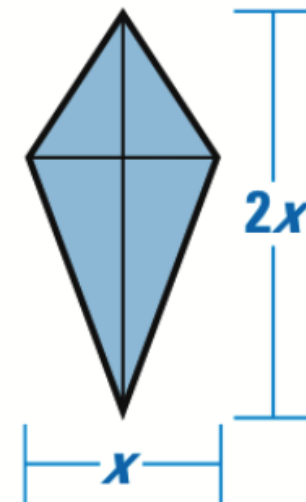
Find the area of the figure.



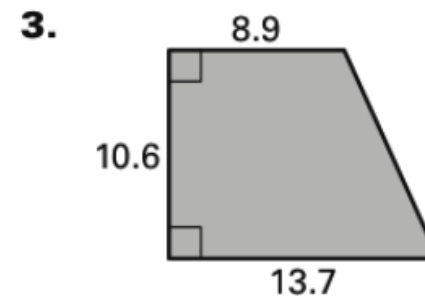
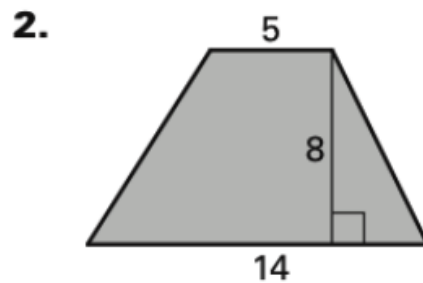
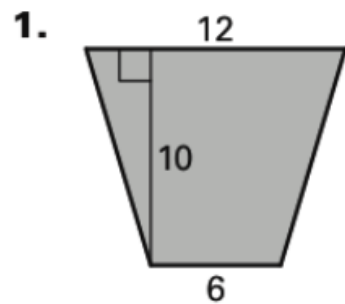
EXAMPLE 3 Standardized Test Practice

One diagonal of a kite is twice as long as the other diagonal. The area of the kite is 72.25 square inches. What are the lengths of the diagonals?

- S → **(A)** 6 in., 6 in. **(B)** 8.5 in., 8.5 in. **(C)** 8.5 in., 17 in. **(D)** 6 in., 12 in.

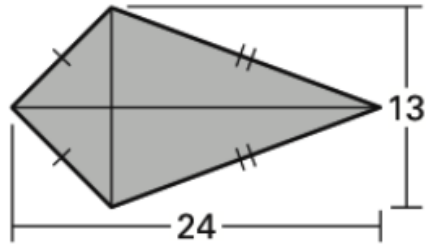


Assignment:
11.2 WS

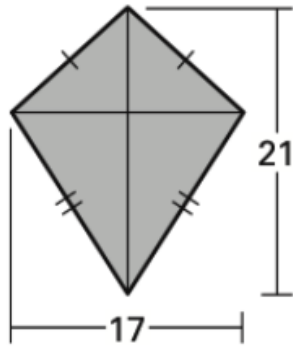
LESSON
11.2**Practice B***For use with pages 729–736***Find the area of the trapezoid.**

Find the area of the rhombus or kite.

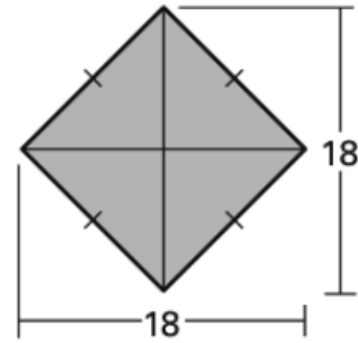
4.



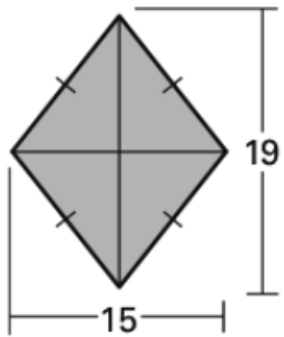
5.



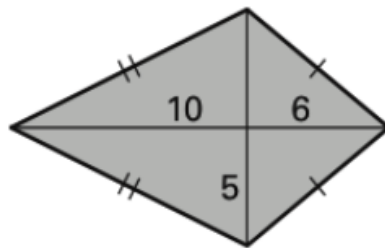
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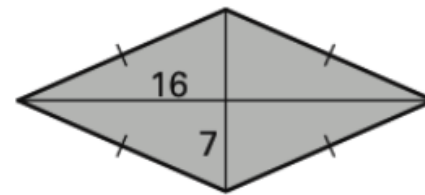
7.



8.

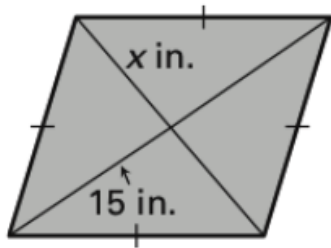


9.

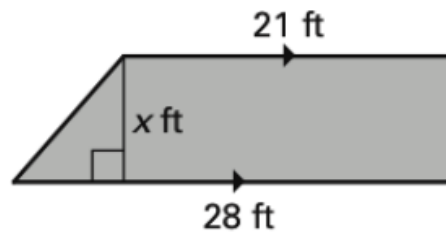


Use the given information to find the value of x .

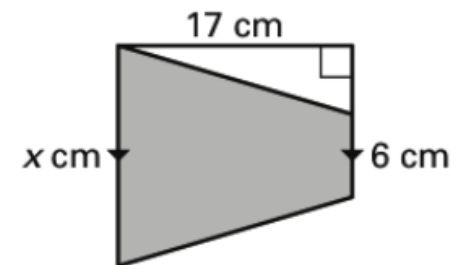
10. Area = 330 in.^2



11. Area = 196 ft^2

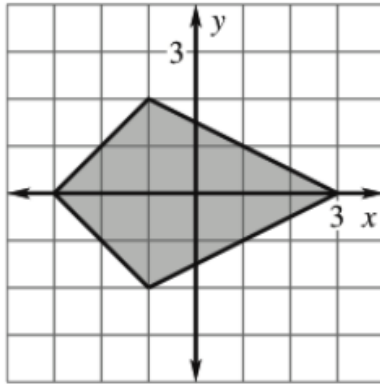


12. Area = 187 cm^2

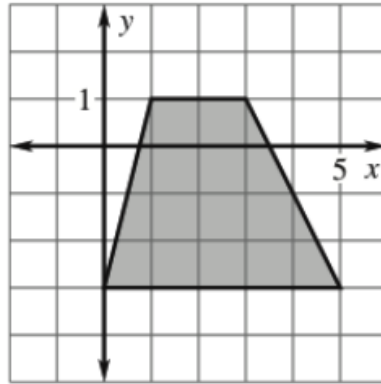


Find the area of the figure.

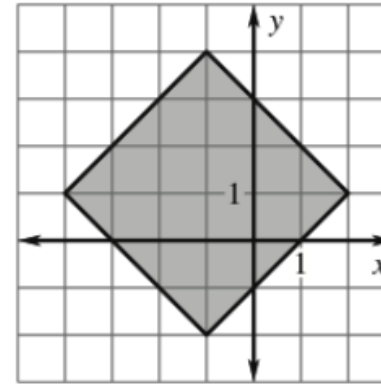
13.



14.

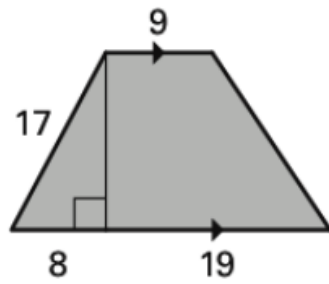


15.

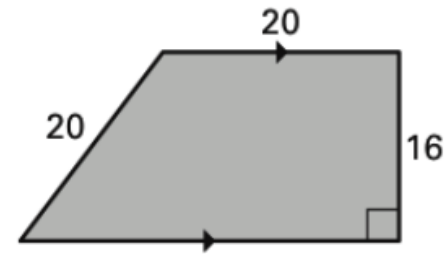


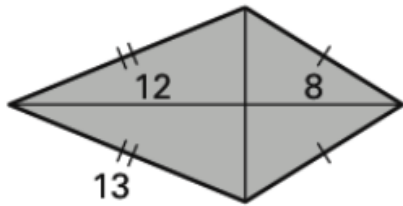
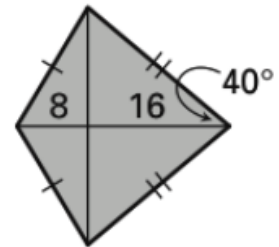
Find the area of the polygon.

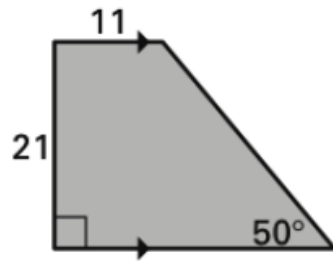
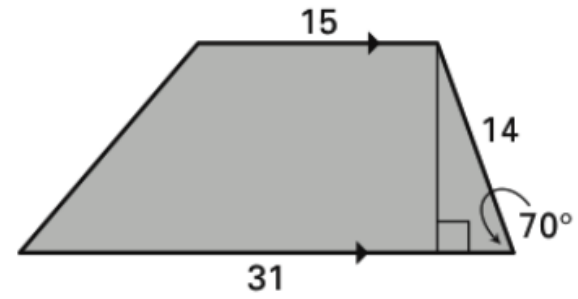
16.



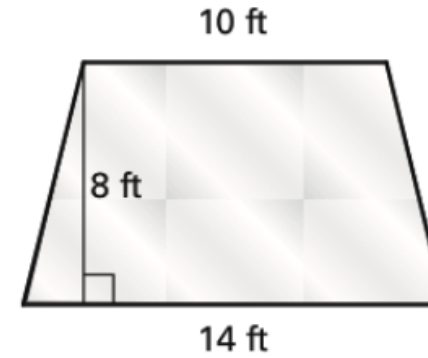
17.



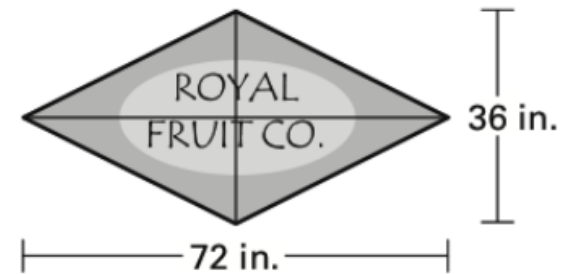
18.**19.**

20.**21.**

- 22. Washing Windows** You are going to wash a large glass window in the shape of a trapezoid. The lengths of the bases of the window are 10 feet and 14 feet. The height is 8 feet. You can wash 6 square feet of the window in 1 minute. How long will it take you to wash the entire window?



- 23. Company Logo** A company has a logo that is in the shape of a rhombus. The company wants to put its logo on a sign outside the building. On the sign, the diagonals of the rhombus will be 72 and 36 inches long. Find the area of the logo.



24. Flower Decoration You are making a flower decoration for your house in the shape of a kite. The area of the decoration is 450 square centimeters and the length of one diagonal is 25 centimeters. Find the length of the other diagonal.

Assignment:

p. 733 (3-5, 7-12, 16-18,
24-29)