11.2 Areas of Trapezoids, Rhombuses, and Kites

**height of a trapezoid** - perpendicular distance between its bases

* the diagonals of a rhombus bisect each other *
* the diagonals of a kite are perpendicular but only one is bisected *

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**THEOREM**

**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

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

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**THEOREMS**

**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

\[ A = \frac{1}{2} d_1 d_2 \]

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**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

\[ A = \frac{1}{2} d_1 d_2 \]