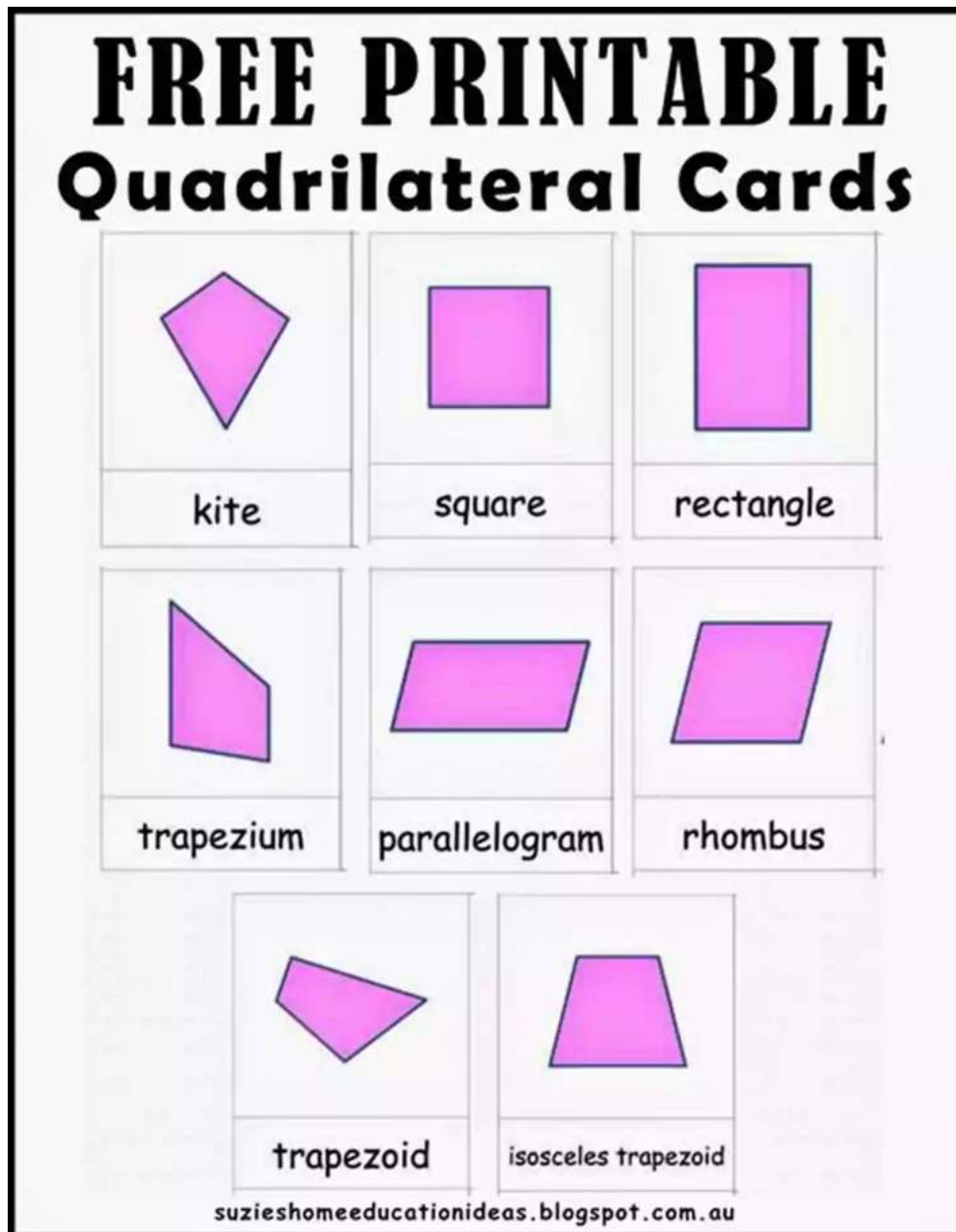


Squares, Rectangles, and Other Quadrilaterals

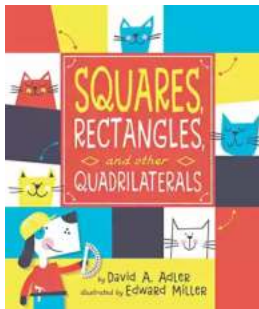


Quadrilaterals are fascinating shapes that have been studied for centuries. They are polygons with four sides and four angles, making them a fundamental part of geometry. In this article, we will delve into the world of quadrilaterals, with a special focus on squares and rectangles - two of the most common and well-

known quadrilaterals. We will also explore other types of quadrilaterals, including their properties, characteristics, and real-life applications.

Squares - Perfect Symmetry and Equal Sides

Squares are quadrilaterals that have four equal sides and four right angles. The beauty of squares lies in their perfect symmetry. Each side is parallel to its opposite side, and the diagonals bisect each other at right angles.



Squares, Rectangles, and Other Quadrilaterals

by David A. Adler (Kindle Edition)

★★★★☆ 4.3 out of 5

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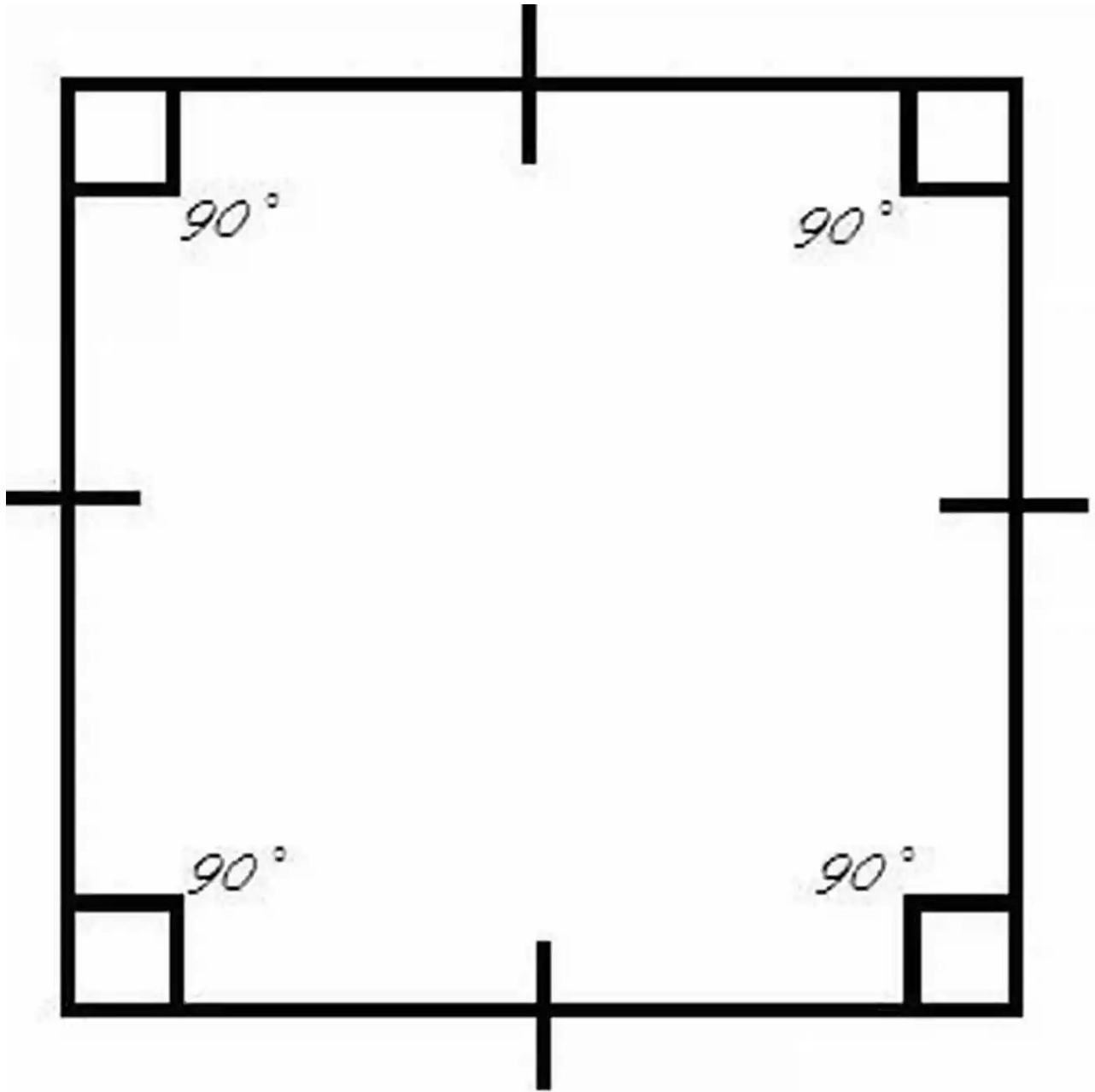
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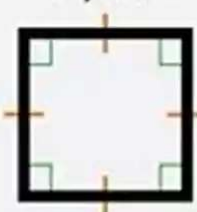
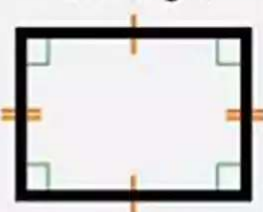
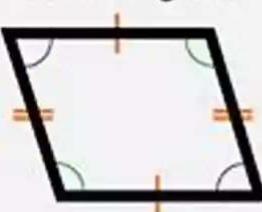
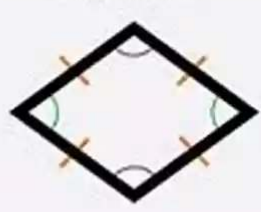
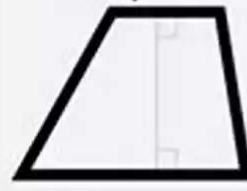
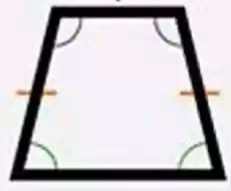
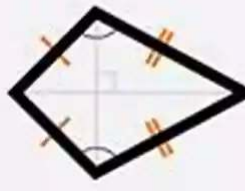



Squares have been prominent in various fields of human endeavor. From architecture to art, their aesthetic appeal has been widely recognized. In urban planning, squares have been used as public gathering places for centuries. Their symmetry and balance create a harmonious environment, inviting people to relax and socialize.

Rectangles - Versatility in Shape and Application

Rectangles are quadrilaterals with four right angles, just like squares. However, unlike squares, rectangles have opposite sides of different lengths. This versatility in shape allows rectangles to be used in a wide range of applications. From building structures to graphic design, rectangles provide a stable and easily recognizable form.

Quadrilaterals

<p>Square</p>  <p>Four sides of equal length, four internal right angles.</p>	<p>Rectangle</p>  <p>Four internal right angles, opposite sides of equal length.</p>	<p>Parallelogram</p>  <p>Opposite sides are parallel and equal in length, opposite angles are equal.</p>	<p>Rhombus</p>  <p>All four sides are the same length, like a square that has been squashed sideways.</p>
<p>Trapezium (or trapezoid)</p>  <p>Two sides are parallel. Side lengths and angles are not equal.</p>	<p>Isosceles Trapezium (or trapezoid)</p>  <p>Two sides are parallel and base angles are equal, non-parallel sides are equal length.</p>	<p>Kite</p>  <p>Two pairs of adjacent sides are of equal length; the shape has an axis of symmetry.</p>	<p>Irregular Quadrilateral</p>  <p>No sides are equal in length and no internal angles are the same.</p>

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The practicality of rectangles can be seen in everyday objects such as windows, doors, and bookshelves. Their balanced proportions provide stability and functionality. In graphic design, rectangles are often used to frame content or

create visually appealing compositions. The simplicity of rectangles allows for easy integration into various mediums.

Other Quadrilaterals - Exploring Diversity

Beyond squares and rectangles, the world of quadrilaterals offers a vast array of shapes, each with its own unique properties and characteristics.

Parallelograms

Parallelograms are quadrilaterals with opposite sides parallel to each other. They have unique properties such as opposite sides being equal in length and opposite angles being congruent.

RisingPearl 1

Theorem – A quadrilateral is a parallelogram if a pair of opposite sides is equal and parallel.

① $BC = AD$

② $BC \parallel AD$

✓ $\left\{ \begin{array}{l} AB \parallel CD \\ BC \parallel AD \end{array} \right.$

✓ $\left\{ \begin{array}{l} AB = CD \\ BC = AD \end{array} \right.$

Trapezoids

Trapezoids, or trapeziums, are quadrilaterals with one pair of opposite sides parallel. They can have additional properties like equal diagonals or equal angles, creating various subcategories within the trapezoid family.

Trapezoid

A quadrilateral which has at least one pair of parallel sides.

As the sides AB and CD remain parallel as shown in the diagram.

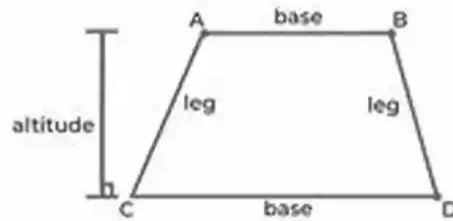


figure (a)

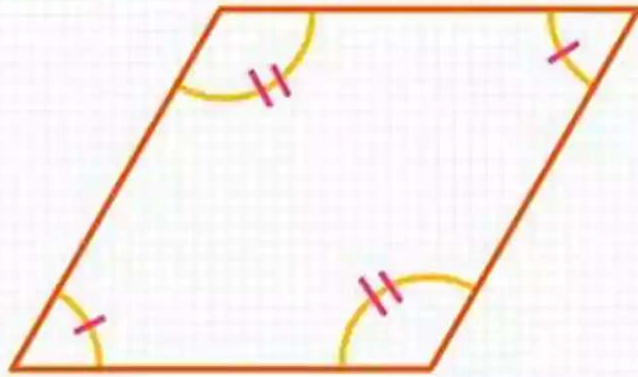
Rhombuses

Rhombuses, often referred to as diamonds, are quadrilaterals with four equal sides. They also have opposite angles that are congruent. Rhombuses possess a sense of elegance and charm, making them popular in jewelry and decorative designs.

RHOMBUS

properties

All interior angles
add up to 360°



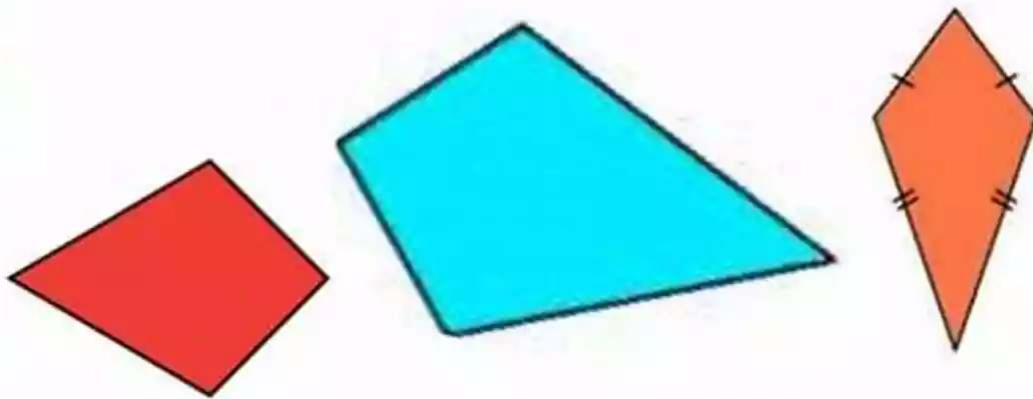
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Kites

Kites are quadrilaterals with two pairs of adjacent sides that are equal in length. They have one pair of opposite angles congruent but differ in size for the other pair. Kites are commonly used in recreational activities, such as kite flying.

Kite

a quadrilateral with 2 pairs of adjacent equal sides



Application in Real Life

Understanding quadrilaterals, including squares, rectangles, and their counterparts, has significant practical implications in various fields.

Architecture and Construction

Architects and engineers heavily rely on quadrilaterals to design and construct buildings. By understanding the properties of quadrilaterals, they can create stable and visually appealing structures. Squares and rectangles form the foundation of many architectural elements, providing support and solidity.

Graphic Design

Graphic designers utilize quadrilaterals, especially squares and rectangles, to create aesthetically pleasing visuals. The balanced proportions and clean lines of these shapes aid in the composition of logos, posters, and websites.

Geographic Analysis

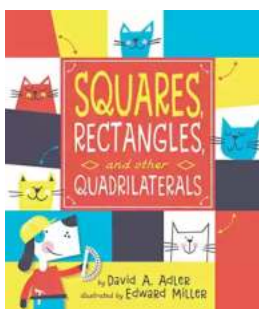
Quadrilaterals play a crucial role in geographic analysis, especially when dealing with land division and mapping. Parallelograms, trapezoids, and kites are frequently employed to determine and demarcate borders.

Mathematics and Geometry

The study of quadrilaterals is an essential component of mathematics and geometry education. Understanding their properties and relationships helps students develop problem-solving skills and spatial awareness.

Squares, rectangles, and other quadrilaterals are intriguing shapes with diverse properties and applications. From their perfect symmetry to their versatility, these shapes have found their way into various aspects of our lives. By understanding the characteristics of quadrilaterals, we can appreciate their beauty and harness their practicality.

Whether you're an architect, artist, mathematician, or simply someone who appreciates geometry, squares, rectangles, and other quadrilaterals offer endless opportunities for exploration and creativity.



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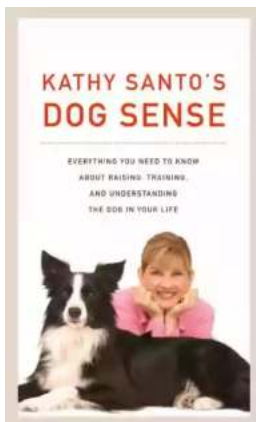
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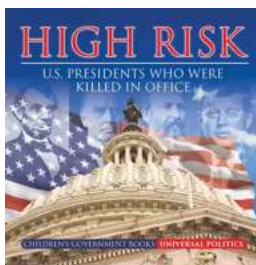
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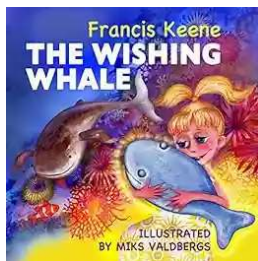
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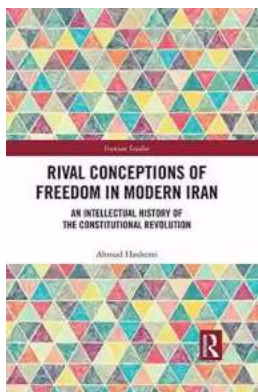
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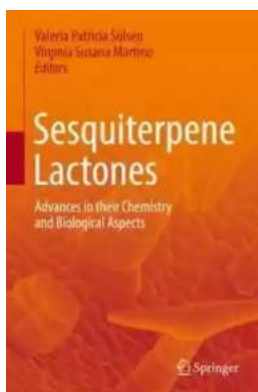
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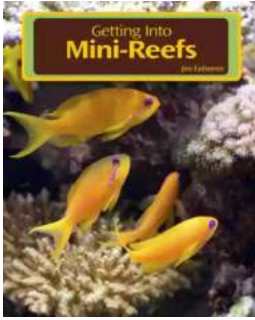
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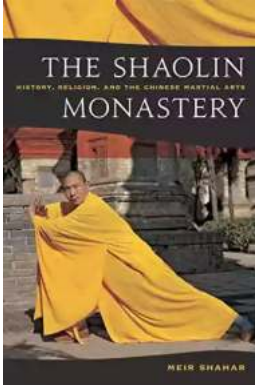
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