

Quadrilateral Properties and Hierarchy

A Square is a quadrilateral with equal-length sides forming four right-angles.

A Square is also a special type of Rhombus and of a Rectangle.

A Rhombus is a Quadrilateral in which opposite sides are parallel and all four sides are of equal length.

A Rhombus is also a special type of Kite and a special type of Parallelogram.

A rectangle is a quadrilateral with four right-angles and opposite sides that are parallel.

It is also a special type of Parallelogram.

A Parallelogram is a quadrilateral in which each of the two pairs of opposite sides are parallel.

A Parallelogram is also a special type of Trapezoid.

A Kite is a Quadrilateral in which the sides can be grouped into two pairs of adjacent equal-length sides. A Kite is also a special type of Quadrilateral.

A Trapezoid is a Quadrilateral in which two of the sides are parallel. A Trapezoid is also a special type of Quadrilateral.

1. Ruler

A Geometrical instruments box is a basic requirement for those who learn geometry. You have used the instruments in the geometry box in your previous classes. Let us recall their names and uses.

One edge of the ruler is graduated in centimeters and the other in inches. A ruler is used to draw lines and measure the length of the line segment.

2. Compass

Compass is used to draw a circle with a given measurement of its radius and a line segment.

We can also construct angles of given measures with the compass. There is a provision in the compass to insert a pencil.

3. Divider

It is used to measure the length of a line segment and to compare the lengths of two given line segments.

4 and 5 A pair of Set – Squares

They are used to construct perpendicular lines and parallel lines. One set-square has $30^\circ - 60^\circ - 90^\circ$ angles at the vertices and the other has $45^\circ - 45^\circ - 90^\circ$ angles at the vertices.

6. Protractor

A protractor's curved edge is graduated into 180 equal parts. Each part is equal to one degree. The graduation starts from 0° on the right hand side and ends with 180° on the left hand side and viceversa.

A protractor is used to construct and to measure given angles.

Greek Letter	Name	Equivalent	Sound When Spoken	
Α	α	Alpha	A	al-fah
Β	β	Beta	B	bay-tah
Γ	γ	Gamma	G	gam-ah
Δ	δ	Delta	D	del-tah
Ε	ε	Epsilon	E	ep-si-lon
Ζ	ζ	Zeta	Z	zay-tah
Η	η	Eta	E	ay-tay
Θ	θ	Theta	Th	thay-tah
Ι	ι	Iota	I	eye-o-tah
Κ	κ	Kappa	K	cap-ah
Λ	λ	Lambda	L	lamb-dah
Μ	μ	Mu	M	mew
Ν	ν	Nu	N	new
Ξ	ξ	Xi	X	zzEye
Ο	ο	Omicron	O	om-ah-cron
Π	π	Pi	P	pie
Ρ	ρ	Rho	R	row
Σ	σ	Sigma	S	sig-ma
Τ	τ	Tau	T	tawh
Υ	υ	Upsilon	U	oop-si-lon
Φ	φ	Phi	Ph	figh or fie
Χ	χ	Chi	Ch	kigh
Ψ	ψ	Psi	Ps	sigh
Ω	ω	Omega	O	o-may-gah

1. A quadrilateral is a with sides.
2. Perpendicular means at or at degrees.
3. Two types of quadrilaterals with right-angled vertices are and
4. A parallelogram has two pairs of sides that are , and opposite angles that are equal.
5. A rhombus is a special type of parallelogram because it haspairs of parallel sides.
6. The only quadrilateral that has diagonals bisecting each other perpendicularly is called a
7. A square is always a rectangle, because a square is a special type of rectangle that has equal sides.
8. A rectangle is not always a square, because a rectangle does not necessarily have sides that are all
9. A is a quadrilateral that has two pairs of equal length sides and one pair of opposite equal angles.
10. A trapezoid is a quadrilateral having pair of parallel sides.

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1/ Trapezoid



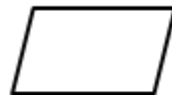
(a)

2/ Quadrilateral



(b)

3/ Square



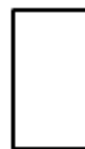
(c)

4/ Rhombus



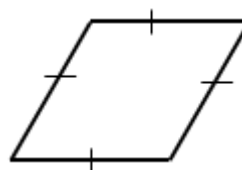
(d)

5/ Kite



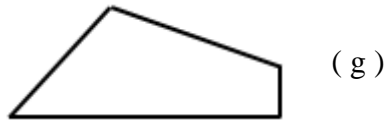
(e)

6/ Parallelogram



(f)

7/ Rectangle



KEY

1. A quadrilateral is a polygon with 4 sides.

2. Perpendicular means at right angles or at 90 degrees.

3. Two types of quadrilaterals with right-angled vertices are rectangles and squares .

4. A parallelogram has two pairs of sides that are parallel , and opposite angles that are equal.

6. A rhombus is a special type of parallelogram because it has two pairs of parallel sides.

9. The only quadrilateral that has diagonals bisecting each other perpendicularly is called a square .

10. A square is always a rectangle, because a square is a special type of rectangle that has four equal sides.

11. A rectangle is not always a square, because a rectangle does not necessarily have sides that are all equal in length .

14. A kite is a quadrilateral that has two pairs of equal length sides and one pair of opposite equal angles.

15. A trapezoid is a quadrilateral having one pair of parallel sides.

Trapezoid



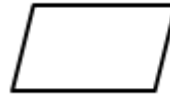
Kite

Quadrilateral



Square

Square



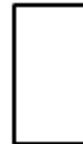
Parallelogram

Rhombus



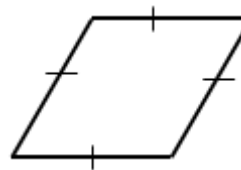
Trapezoid

Kite



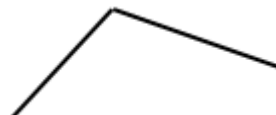
Rectangle

Parallelogram



Rhombus

Rectangle



Quadrilateral