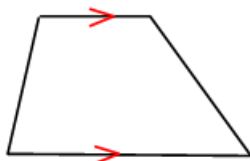# Quadrilaterals

Any polygon with four sides is a quadrilateral. However, some quadrilaterals have special properties. These *special quadrilaterals* are given their own names.
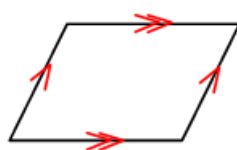

Definition 1: Trapezoid

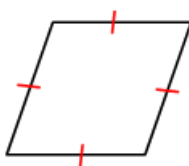A trapezoid is a quadrilateral with exactly 1 pair of parallel sides.

Definition 2: Parallelogram

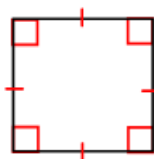A parallelogram is a quadrilateral with both pairs of opposite sides parallel.

Definition 3: Rhombus

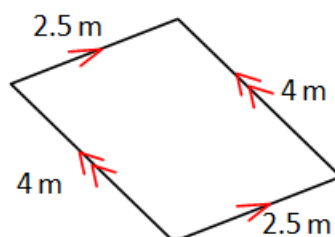A rhombus is a quadrilateral with 4 congruent sides

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Definition 5: Square

A square is a parallelogram with 4 right angles and 4 congruent sides.
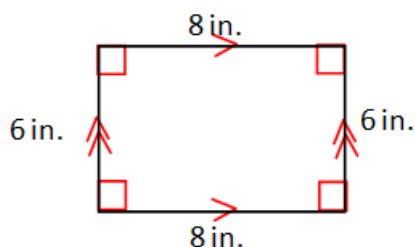

Example 1: Classify each quadrilateral

a)

The quadrilateral is a parallelogram because both pairs of opposite sides are parallel.
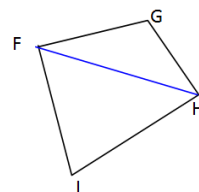
b)

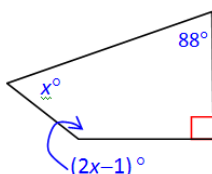The quadrilateral is a parallelogram with 4 right angles. So, it is a rectangle.

Activity

Draw diagonal FH, which divides quadrilateral FGHI into two triangles.

The sum of the angle measures in each triangle is 180°.

The sum of the angle measures in a quadrilateral is 180° + 180°.

Example 2: Find the value of x.

$x°+(2x° − 1)°+90°+ 88° = 360°$ Sum of angle measures in a quadrilateral is 360°.
$3x + 177 = 360$ Combine like terms.
$3x = 183$ Subtract 177 from each side.
$x = 61$ Divide each side by 3.