

Learning Activity Quadrilaterals

You will need a ruler and a protractor.

A quadrilateral is a polygon with 4 sides. Quadrilaterals can be classified according to the properties of their sides, angles, diagonals and axes of symmetry.

Note:

- A diagonal is a segment that joins two nonconsecutive (not beside each other) vertices of a polygon.
- A bisector divides something into two **equal** parts

WHO AM I? Find the quadrilaterals with the given properties.

Properties according to the measure of the SIDES, ANGLES, DIAGONALS and AXES of SYMMETRY	Drawing	Name of Quadrilateral
<ul style="list-style-type: none"> -All sides are congruent -All angles are congruent -Diagonals are congruent and bisect each other at 90° -4 axes of symmetry 		
<ul style="list-style-type: none"> -All angles measure 90° -Diagonals are congruent and bisect each other -2 axes of symmetry 		

Properties according to the measure of the SIDES, ANGLES, DIAGONALS and AXES of SYMMETRY	Drawing	Name of Quadrilateral
<ul style="list-style-type: none"> -Opposite sides and angles are congruent -Diagonals are not congruent but do bisect each other -No axes of symmetry 		
<ul style="list-style-type: none"> -All sides are congruent -Diagonals are not congruent but bisect each other at 90° -2 axes of symmetry 		
<ul style="list-style-type: none"> -1 pair of opposite sides are congruent -one pair of parallel sides -one axes of symmetry -2 pairs of congruent angles 		
<ul style="list-style-type: none"> -Only 2 right angles -One pair of parallel sides -No axes of symmetry 		

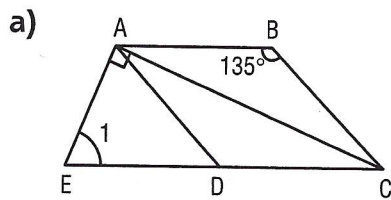
What is the sum of the angles of a quadrilateral? _____

For each quadrilateral, put an x in the appropriate boxes.

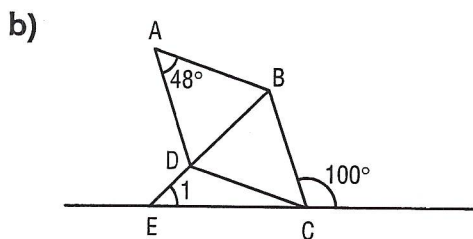
Property	Quadrilateral	Trapezoid	Isosceles trapezoid	Right trapezoid	Parallelogram	Rectangle	Rhombus	Square
1	Exactly two sides are parallel.							
2	The non-parallel sides are congruent.							
3	Opposite sides are parallel.							
4	Opposite sides are congruent.							
5	All four sides are congruent.							
6	Opposite angles are congruent.							
7	Consecutive angles are supplementary.							
8	There are exactly two right angles.							
9	There are four right angles.							
10	The diagonals are congruent.							
11	The diagonals bisect each other.							
12	The diagonals are perpendicular.							
13	The diagonals are axes of symmetry.							
14	The quadrilateral has at least one axis of symmetry.							

8.2 Problems on quadrilaterals

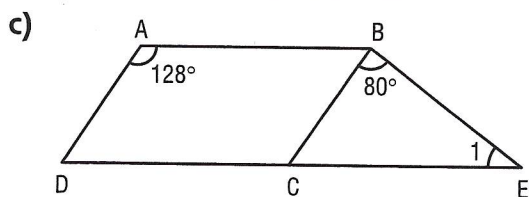
1. Determine the measure of angle 1 in each of the following quadrilaterals.



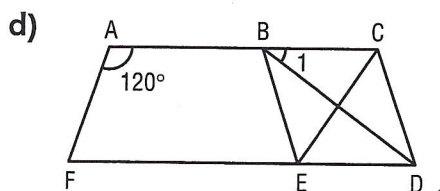
ABCD is a rhombus.



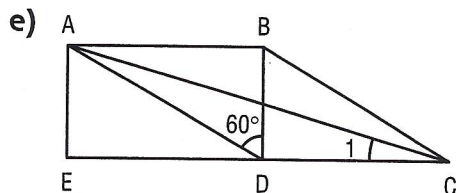
ABCD is a rhombus



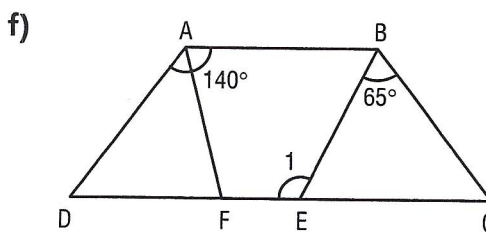
ABCD is a parallelogram.



ABEF is an isosceles trapezoid and BCDE is a rhombus.

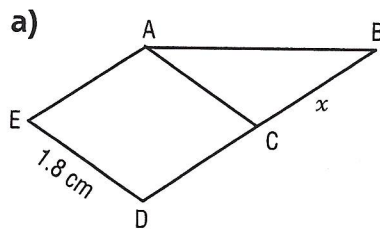


ABDE is a rectangle and ABCD is a parallelogram.

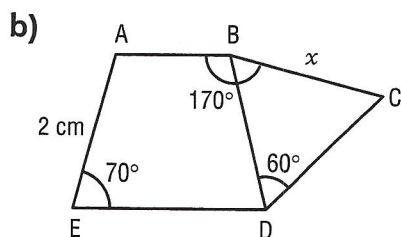


ABCD is an isosceles trapezoid and ABEF is a trapezoid.

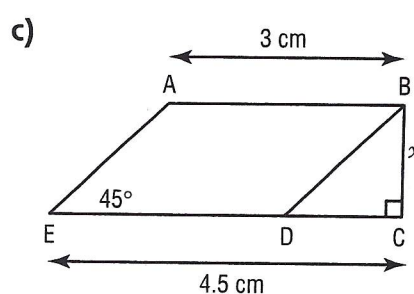
2. Determine the value of x in each of the following quadrilaterals.



ACDE is a rhombus and ABC is an isosceles triangle.



ABDE is an isosceles trapezoid.



ABDE is a parallelogram and $\angle C$ is a right angle.