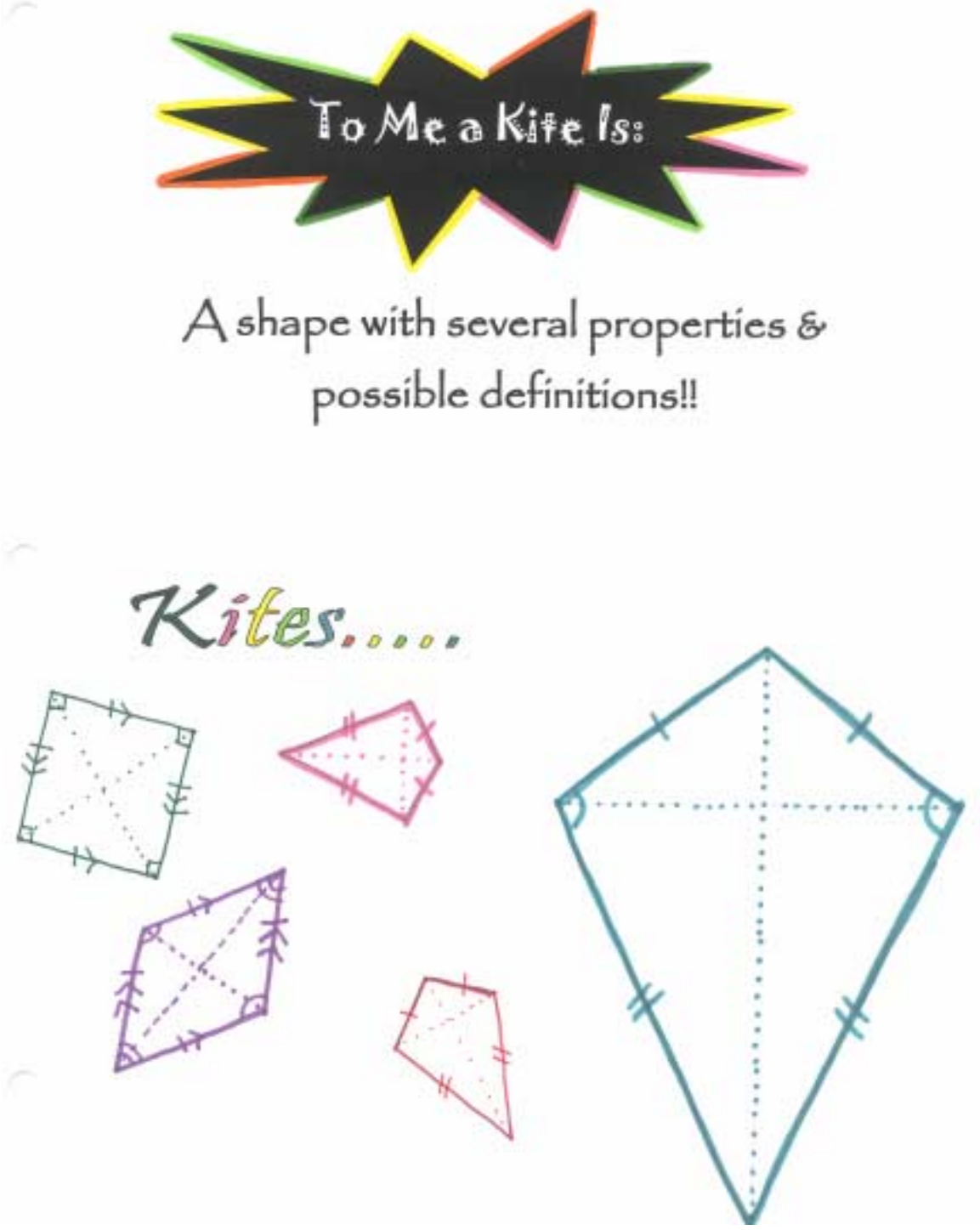


Geometric Structures Project

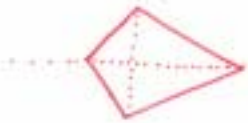
By Christine Ramey

File: ChristineRameyProject.doc

Various Properties of a Kite:

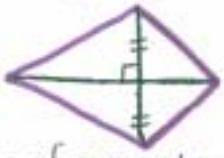
- Kites have four sides.

- Kites have at least one diagonal as a line of symmetry.

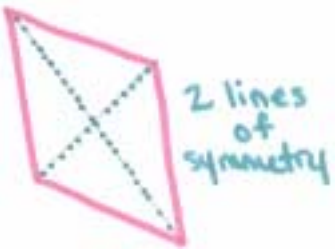


- Kites have two pairs of adjacent congruent sides.

- Kites have at least one diagonal, which is a perpendicular bisector of the other.



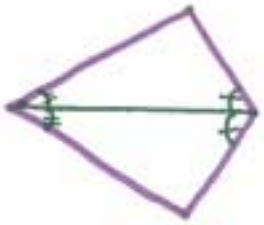
- Kites have at least one line of symmetry.



Definitions of a Kite:

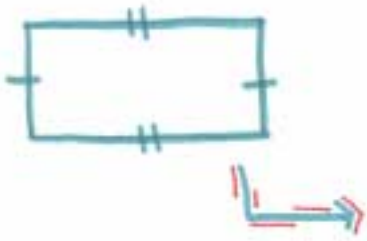
- A kite is a quadrilateral that has two pairs of adjacent congruent sides and diagonals which are perpendicular.

- A kite is a quadrilateral in which one of the diagonals bisects a pair of opposite angles.



- A kite is a quadrilateral in which at least one diagonal is a line of symmetry and has one pair of opposite congruent angles.

Not Kites..... Why Not?



This is not considered a kite because it has pairs of congruent opposite sides and a kite has congruent adjacent sides. This quadrilateral is a rectangle!

One reason this is not a kite is that it does not contain a line of symmetry, whereas a kite has at least <u>one</u> line of symmetry. Instead, this figure is a parallelogram!

This figure does not have any pairs of adjacent congruent sides, but a kite has <u>two</u> pairs of adjacent congruent sides. We call this quadrilateral a trapezoid!

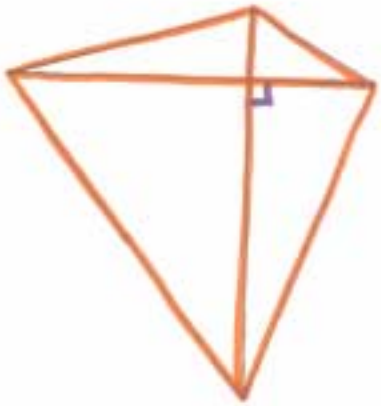
These are not kites because they do not contain four sides.
The shape on the right is a circle!
The shape on the left is a triangle!

Bad Definitions of Kites...

Bad Definition:

A kite is a quadrilateral with perpendicular diagonals.

Note: *this figure satisfies the bad definition, but would not fly very good.*



Bad Definition:

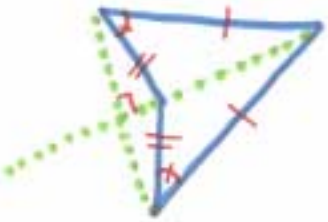
A kite is a quadrilateral with no sides parallel.

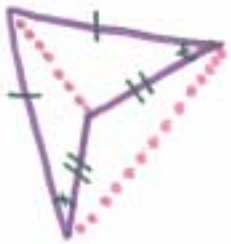
Note: *this figure satisfies the bad definition, but does not look like a kite.*

Convex?

***Kites are unique and it is possible to have not convex (concave) kites. Depending upon the definition of a kite, kites may be convex or concave. According to the definitions I have given, kites can be concave.

Here are a few examples of not convex (concave) kites.





****Notice that the diagonals
do not meet, but when I
extend them, they are perpendicular.