

Problem #2: Quadrilaterals with various attributes

In each of the following A through E, you will answer the question “How many quadrilaterals have this particular attribute?”

- If you believe that there is exactly one such quadrilateral, draw it and explain why no other quadrilateral fits.
- If you believe that there is more than one such quadrilateral, draw a few examples and determine the number of quadrilaterals that have this attribute.
- If you believe that there are no such quadrilaterals, explain why.

How many quadrilaterals can you draw that have...

A. all sides equal?

B. all angles equal?

C. all sides equal but not all angles equal?

D. all angles equal but not all sides equal?

Problem #3: Quadrilaterals with various attributes (continued)

In each of the following F. through K., you will answer the question “How many quadrilaterals have this particular attribute?”

- If you believe that there is exactly one such quadrilateral, draw it and explain why no other quadrilateral fits.
- If you believe that there is more than one such quadrilateral, draw a few examples and determine the number of quadrilaterals that have this attribute.
- If you believe that there are no such quadrilaterals, explain why.

How many quadrilaterals can you draw that have...

E. exactly two pairs of congruent sides, but each pair having different length?

F. exactly 2 congruent sides?

G. exactly 3 congruent sides?

H. exactly 1 right angle?

I. exactly 2 right angles?

J. exactly 3 right angles?

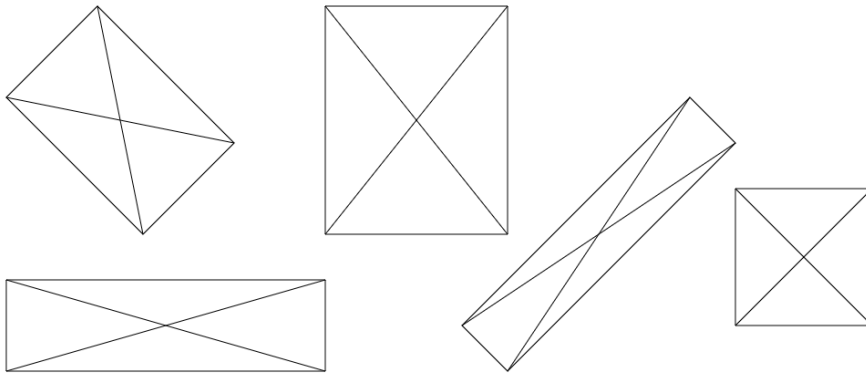
Problem #4: Investigating Diagonals of Quadrilaterals

On this page there are many examples of different kinds of quadrilaterals and their diagonals. Look carefully at the diagonals and do the following:

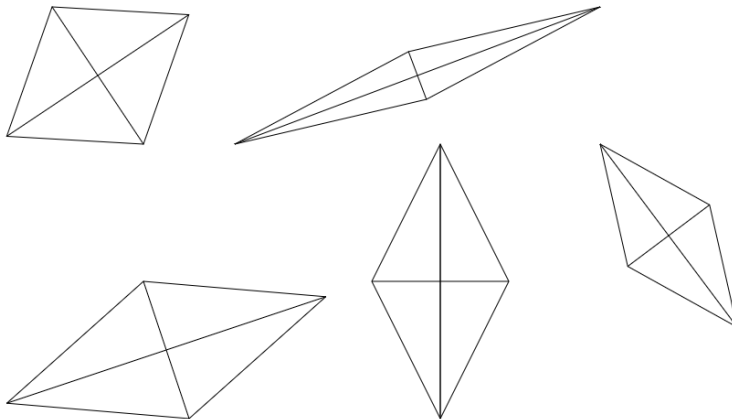
- Observe and measure the angles that the diagonals make with each other.
- Observe where the diagonals meet: where is this point located on the diagonals?
- Compare the length of the two diagonals.

What do the diagonals of rectangles all have in common? What do the diagonals of rhombuses all have in common? What about diagonals of general quadrilaterals?

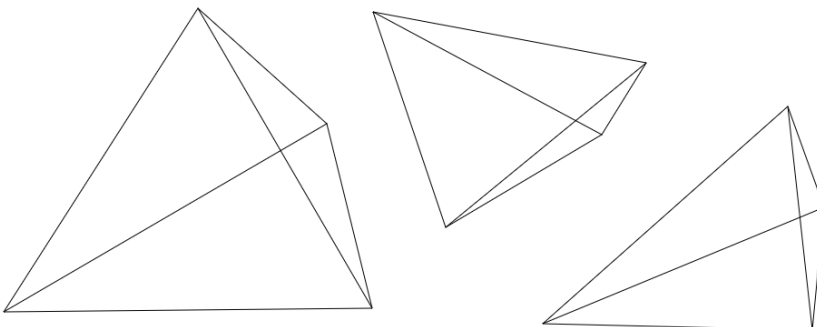
Rectangles:



Rhombuses:



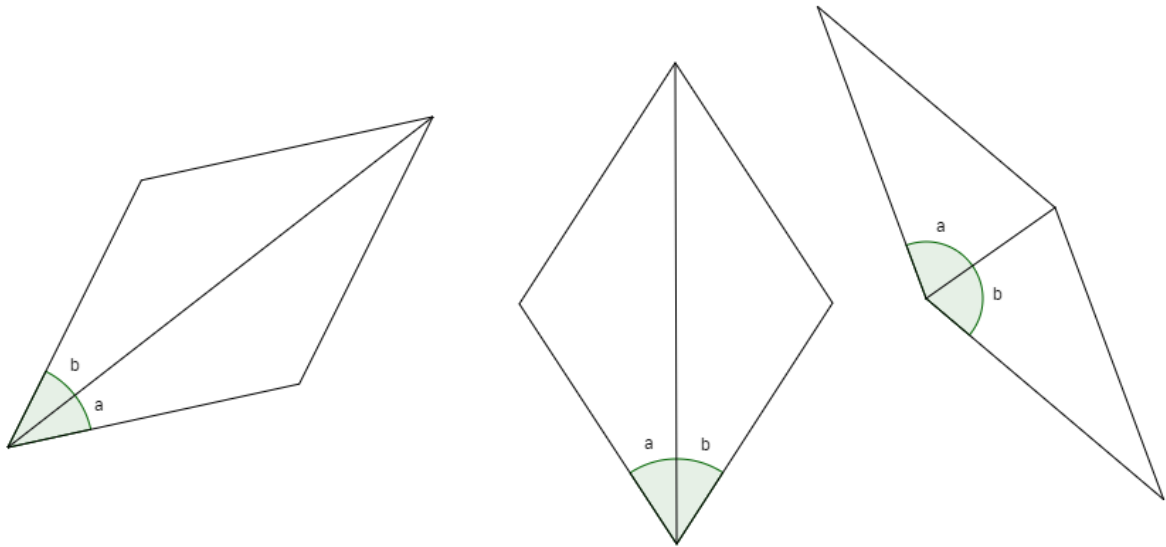
Other Quadrilaterals:



Problem #5: More Investigating Diagonals

Below there are some rhombuses and other quadrilaterals with one of the two diagonals drawn in. The two angles created by the quadrilaterals are labeled a and b . In each case, compare angle a with angle b . Compare what you observed for quadrilaterals with what you observed for rhombuses.

Rhombuses:



Other Quadrilaterals:

