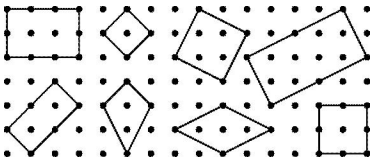
Problems: Quadrilateral Definitions – Version C

Name:_____

1. Look over the figures below and put a large "X" inside those which are rectangles. (Be sure to use an inclusive idea of rectangles.)

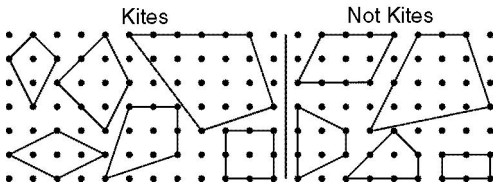


2. We have been considering seven types of quadrilaterals: squares, rhombuses, rectangles, parallelograms, kites, trapezoids and isosceles trapezoids.

   (a) Which of these are special cases of a rectangle?

   (b) Which of these are special cases of a trapezoid?

3. Three properties of kites are given below. You are to decide if they are defining properties or not (if not, then draw a counterexample). The display of "test" examples may help with your decision.



   (a) **Property:** *A kite is a four-sided figure with a line of symmetry.*
   Defining Property? **YES** **NO**
   If NO then give counterexample:

   (b) **Property:** *A kite is a quadrilateral where a diagonal divides the figure into two congruent halves.*
   Defining Property? **YES** **NO**
   If NO then give counterexample:

   (c) **Property:** *A kite is a four-sided figure where one diagonal bisects the angles at each end.*
   Defining Property? **YES** **NO**
   If NO then give counterexample:

4. A "bad" definition for a kite is given below. Show how it is bad by drawing and labeling a picture of a quadrilateral which fits the bad definition but is clearly not a kite.

   Bad Definition: *A kite is a quadrilateral with at least one line of symmetry.*
   Your example:

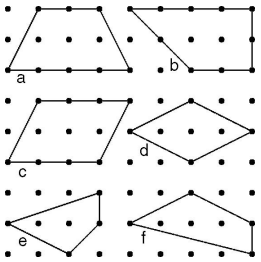
5. For each pair of terms below, fill the two terms in blanks in the sentence to indicate which one is a special case of the other.

   (a) **Terms:** Lollipop Candy
   Sentence: _____ is a special kind of _____.

   (b) **Terms:** Parallelogram Rhombus
   Sentence: _____ is a special case of _____.

   (c) **Terms:** Music Rock and Roll
   Sentence: _____ is a special case of _____.

6. Six figures are given below, some of these are trapezoids including some special cases of trapezoids and some are not trapezoids.



   (a) Give a definition of a trapezoid so that the first four, {a, b, c, d}, are examples according to your definition.

   (b) Give a definition of a trapezoid so that just the first two, a and b, are examples.