ACTIVITY 5.2 *Sam Loyd's Dissection*

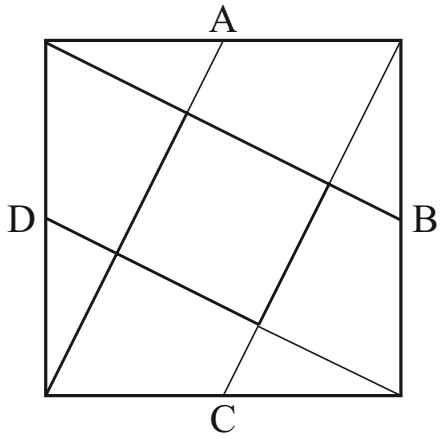
Sam Loyd's famous dissection problem was designed in the 1920s.

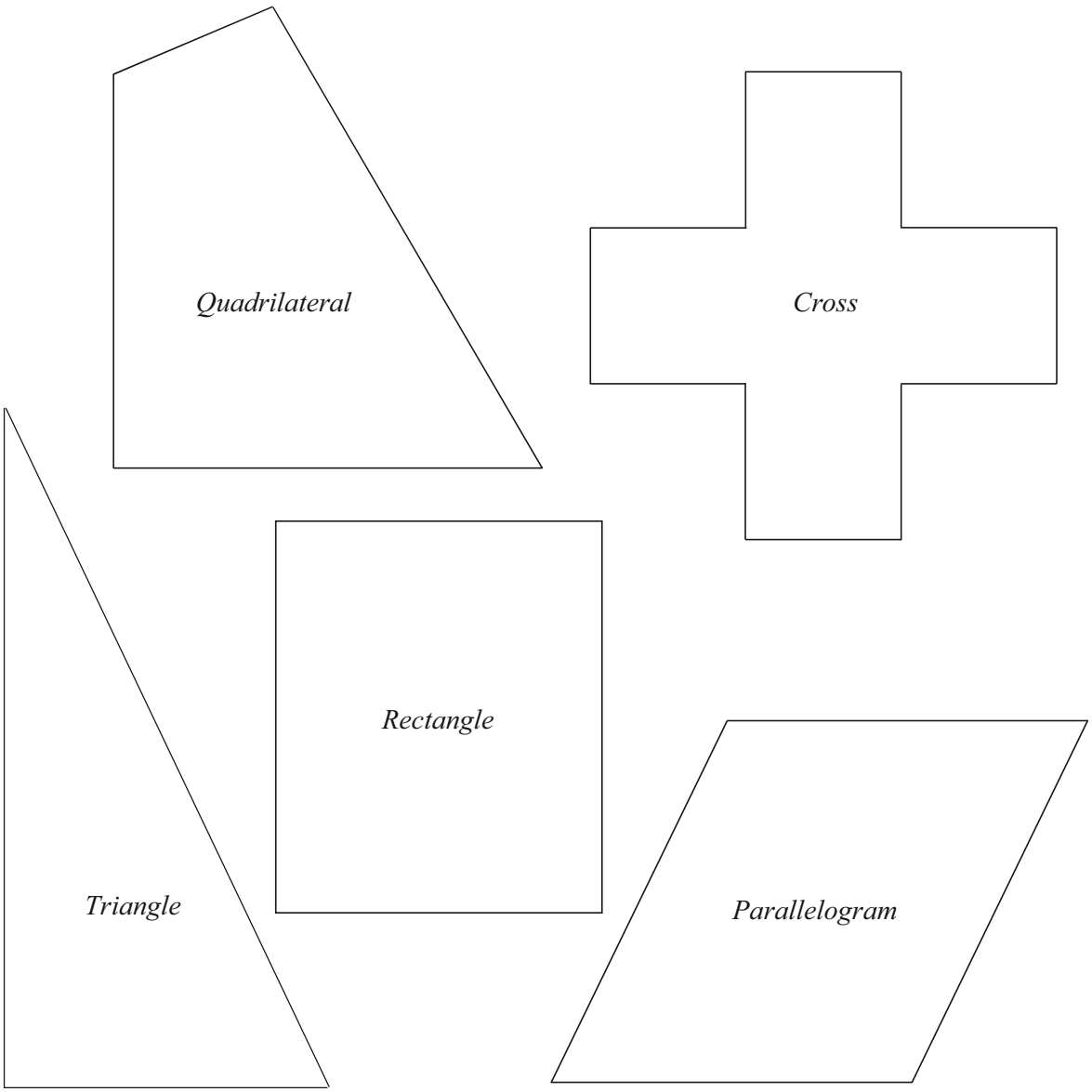
Draw a 5 cm square as shown on the right. Find the midpoints (A, B, C and D in diagram) on each side and join them up as indicated.

Using the diagram as a guide, cut your square into 5 pieces along the bold lines.

Do not cut along the dotted lines.

Use the 5 pieces to make all the shapes below.





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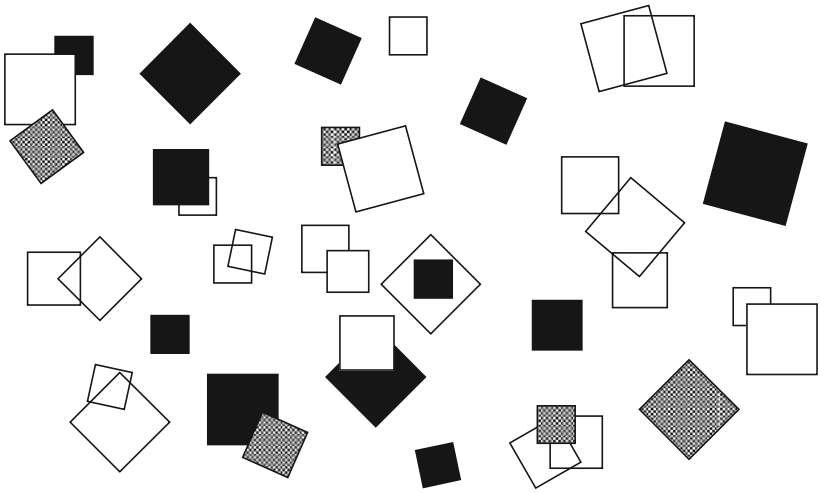
ACTIVITY 5.3 *Overlapping Squares*



Take two squares and put them down on a surface so that they overlap. The squares can be of any size, not necessarily the same.

1. Which of the following shapes can be formed by the overlap:

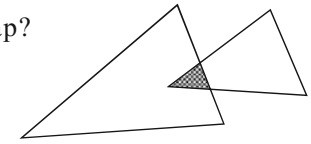
   (a) rectangle (b) square (c) kite (d) rhombus?

2. Can two squares intersect so that a triangle is formed by the overlap?

3. Can two squares intersect so that the overlap forms a polygon of n sides for values of n equal to

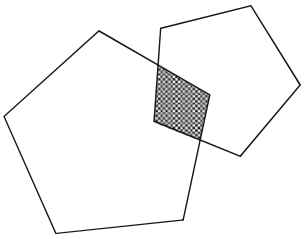
   (a) 5 (b) 6 (c) 7 (d) 8 (e) 9 (f) 10?

4. What happens when two triangles overlap?



Extensions

1. What happens when two pentagons overlap?



2. What happens when two *different* shapes, e.g. square and triangle, overlap?

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