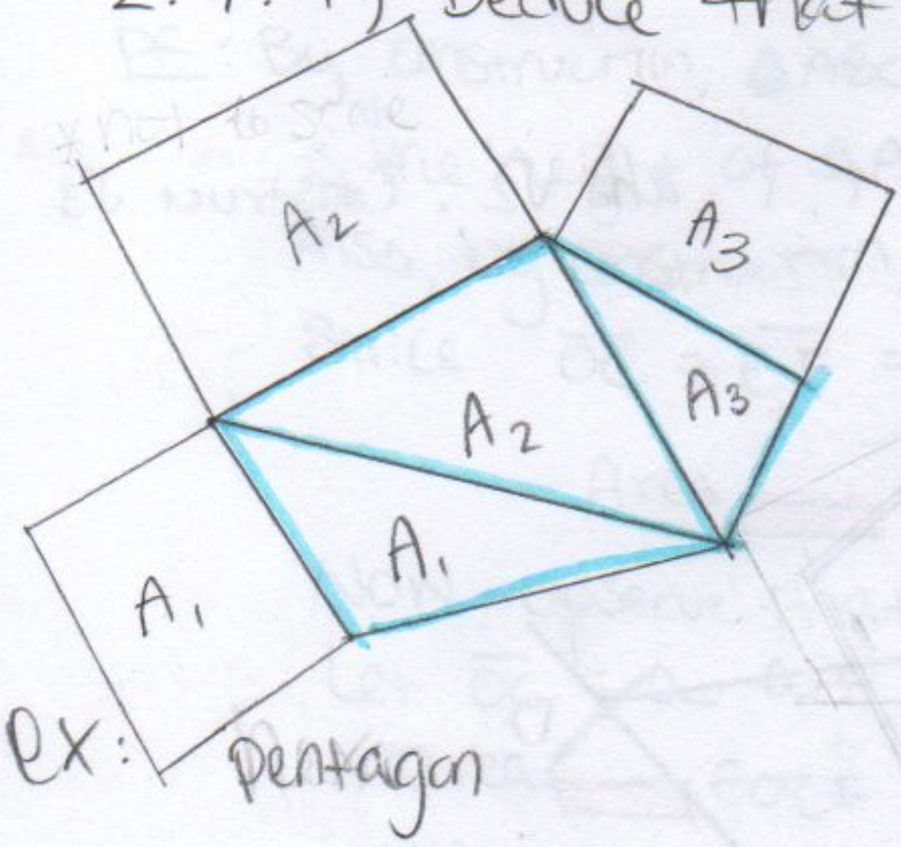
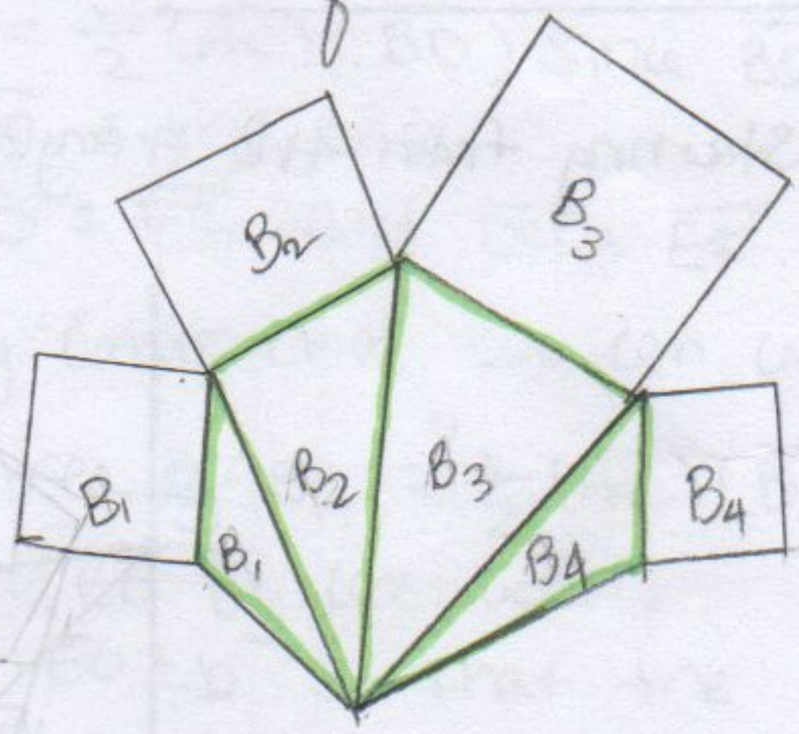
2.7.4) Deduce that polygons can be squared.



ex: pentagon

*not to scale



ex: hexagon

As seen in the picture, we can divide any polygon into triangles by creating diagonal lines connecting the vertices of any given polynomial. From the previous exercises, we know that triangles can be squared s.t. the constructed square will have the same area as the triangle.

how many?

for mean polygon, but that's okay

Since the polygon has been divided into a series of triangles, we see that:

$$\sum \text{areas of } \triangle s = \sum \text{areas of constructed } \square s = \text{area of polygon.}$$

To add the areas of the squares together, we employ the Pythagorean thm s.t.

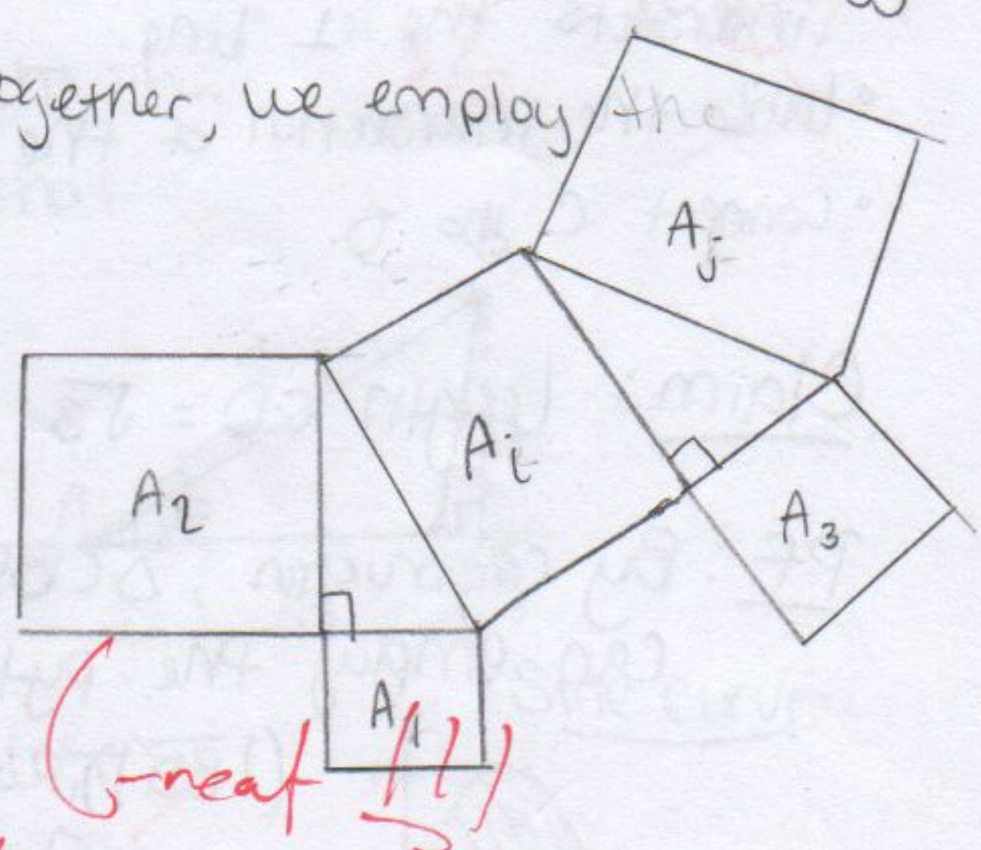
$$\text{Area } A_1 + \text{Area } A_2 = \text{Area } A_i$$

$$\text{Area } A_i + \text{Area } A_3 = \text{Area } A_j$$

$$\vdots$$

$$\text{Area } A_x + \text{Area } A_y = \text{Area } A_z$$

$$\text{Final Area } A_z = \text{area of polygon.}$$



great!!

5/5

Since we can express the area of a given polygon as the sum of the area of squares, we can conclude that polygons can be squared.