

Discussion Problems

Step 8: Regular and Irregular Polygons

National Curriculum Objectives:

Mathematics Year 5: (5G2b) [Distinguish between regular and irregular polygons based on reasoning about equal sides and angles](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 5 Properties of Shapes](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Regular and Irregular Polygons

1. Nico the architect is designing a new playground.

He says,

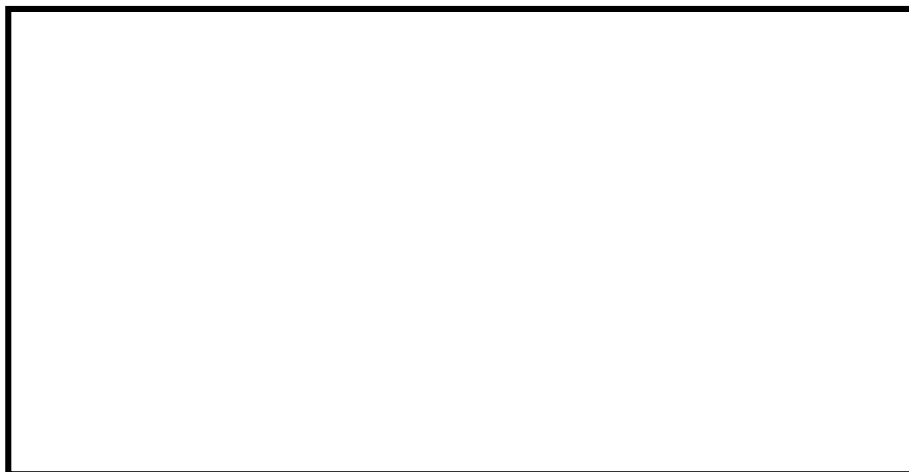
My design must include at least 5 different irregular polygons of different sizes.

It must have at least 3 different types of triangles in it.

It must include at least 6 different regular polygons.



Using a ruler, investigate different designs that Nico use in the space provided below.
How many designs can you create?



DP

2. Samantha is trying to solve a jigsaw puzzle. She has 6 jigsaw pieces left.

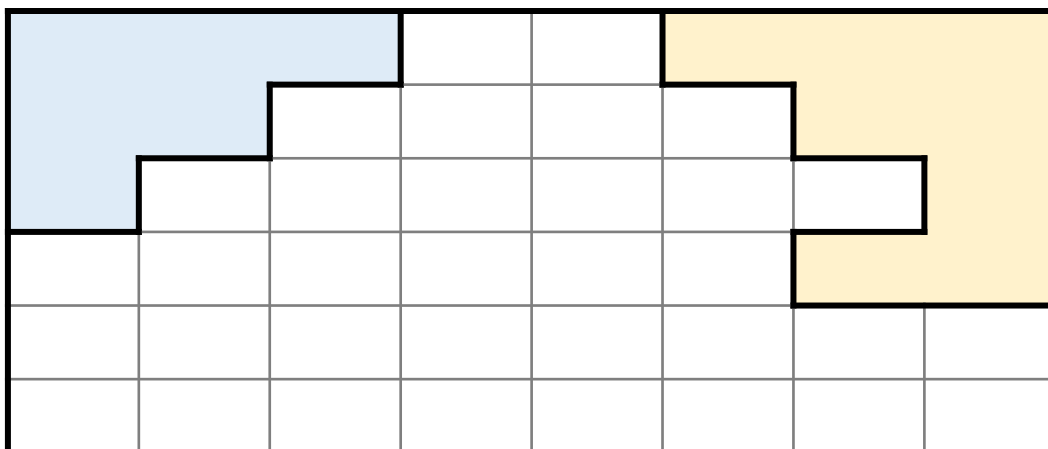
She says,

All the jigsaw pieces I have left are different sizes. They are all irregular polygons and have no more than 10 sides each.



Investigate the possible missing jigsaw pieces below.
Two have been done for you.

How many different combinations of jigsaw pieces can you create?



DP

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He says,

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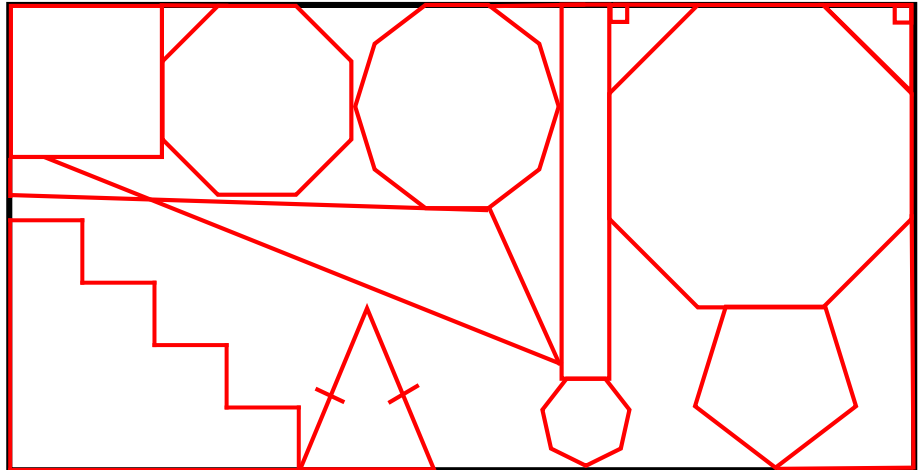
It must have at least 3 different types of triangles in it.

It must include at least 6 different regular polygons.



Using a ruler, investigate different designs that Nico use in the space provided below. How many designs can you create?

Various possible answers, for example:



DP

2. Samantha is trying to solve a jigsaw puzzle. She has 6 jigsaw pieces left.

She says,

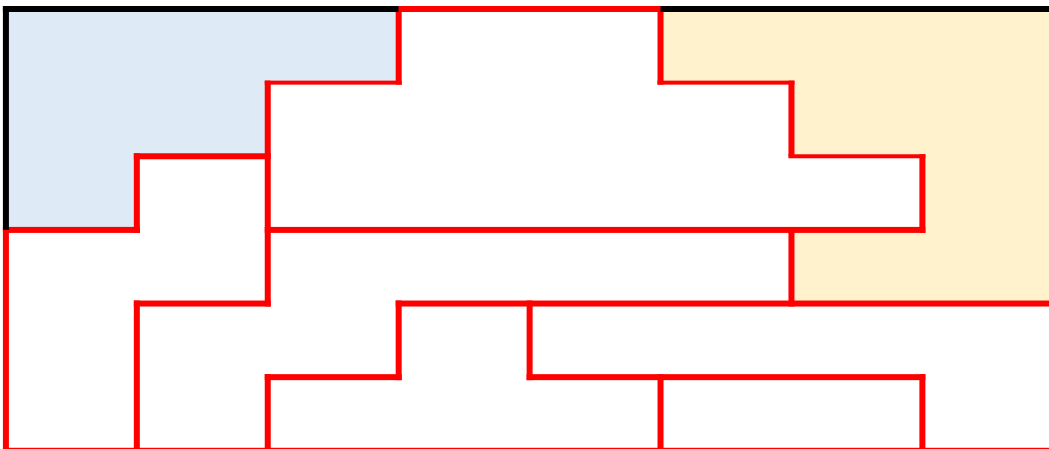
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