

Maths art for CBSE Class 9 and 10: curve stitching, tessellations and designs

CBSE Math Revision · CBSE Class 9 and 10 · Student sheet

Name _____

Class _____

Date _____

No calculator. Every answer works out exactly.

Starter (5 minutes)

1. Find each angle of an equilateral triangle.
2. Work out $360 \div 120$.
3. Find each exterior angle of a regular hexagon.

Main activity (35 minutes)

Task A: Curve stitching

On squared paper, mark 1 to 9 along both axes. Join (1, 0) to (0, 9), (2, 0) to (0, 8), and so on up to (9, 0) to (0, 1). The straight lines make a curve.

- a. Find the equation of the line joining (2, 0) and (0, 8).
- b. Find the equation of the line joining (3, 0) and (0, 7).
- c. Find where these two lines cross.

Task B: Tessellations

A tessellation covers the page with no gaps. At every corner, the angles must add to 360° .

- a. Find the interior angle of a regular hexagon. How many fit together round a point?
- b. Explain why regular pentagons do not tessellate.
- c. A tiling has two regular octagons and a square at every corner. Show that the angles fit.

Task C: Graph-paper designs

Draw a design that is symmetric in the y -axis.

- a. Reflect the point $(3, 5)$ in the y -axis.
- b. Find the distance between $(3, 5)$ and its reflection.
- c. Find the midpoint of $(2, 7)$ and $(6, 3)$, the centre of the design.

Extension

1. Find the equation of the curve-stitching line from $(5, 0)$ to $(0, 5)$.