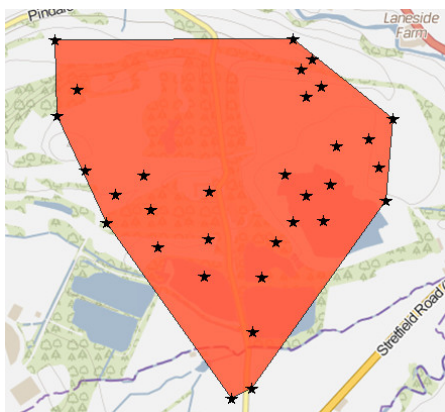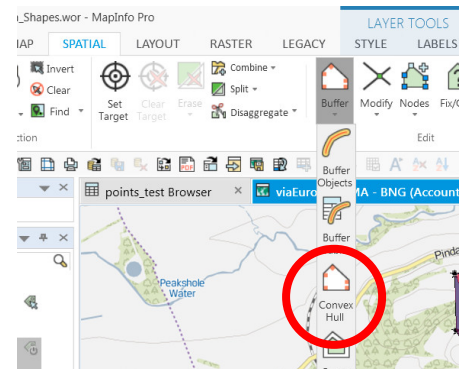# This Week's Wisdom:

Convex & Concave Hulls

You know how to Create Points but what next? How do you analyse this data and gain insight from it? You create a Convex Hull of course!

MapInfo has a built in Convex Hull tool.
1. Make your points layer Editable
2. Select all of the points you want in your box *(for a quick 'Select All', Right Click on the points layer, Click Browse Table then Ctrl+A)*
3. Go to Spatial Tab > Buffer dropdown > Convex Hull

This will draw a region around the furthest points in your cluster. Picture your points as pegs on a board. Now stretch an elastic band around all of the pegs. This shape is a convex hull.

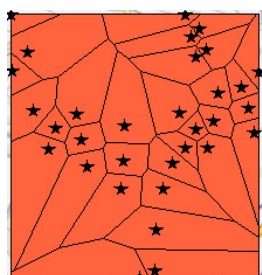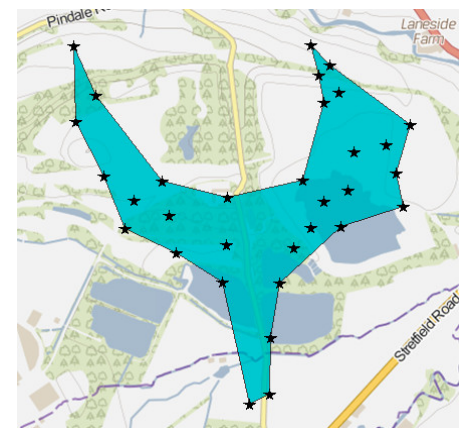***"But this shape doesn't look anything like my points?"***
Note how the 'elastic band' Convex Hull doesn't stretch to every outermost point? Convex hulls are really powerful tools but they can warp your analysis by displaying areas that may not have any points and therefore any significance. There is is a way around this, you can create a Concave Hull or 'Alpha Shape'.

Alpha Shapes Tool

MapInfo doesn't have a tool for creating Concave Hulls, it does however support Voronoi Regions. (See footer for glossary!) We can use these to calculate the Concave Hull of a region and produce a polygon that follows the outline of your points. Fortunately, there's already a free third party MapBasic Application that you can use for the job!

Alpha Shapes - Free MapBasic Application by Nyall Dawson

Visit: https://github.com/nyalldawson/mi-alphashapes/downloads
To download the MapBasic Application (.MBX) file.

NOTE: The Alpha Shapes tool will appear on a new Legacy Tab at the end of your ribbon. The tool was written for 32-bit but still functions in 64-bit.

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Voronoi Regions = A polygon is generated for every point. Everything inside that polygon is closer to that point than any other. You can generate these yourself from the Spatial Tab > Regions dropdown > Voronoi.