Muddled trig

Teacher notes

Why use this resource?

A nice way for students to think about trigonometric functions and about the notational anomalies! The integer scale on the x-axis provides an opportunity to discuss radians and degrees and estimations of π, $\frac{\pi}{2}$ etc.

Preparation

There are cards that can be printed out for students to sort and match. Please note that these have been produced as double sets.

Possible approach

Probably best approached as a card sort with students working in pairs or groups of three. The graphs are also printed on the problem page in case a card sort is not appropriate.

Key questions

- What does $y = \sin^2 x$ mean?
- What does $y = \sin^{-1} x$ mean?

Possible extension

Ask students to sketch in the remaining functions on the given graphs (these appear on the problem sheet as well as on the printable extra). In trying to do this, students will reflect on the properties of all the functions and will need to make use of key features of the given graphs. This task may raise further questions, such as

- What do graphs of reciprocal functions look like?
- Do $y = \sin x$ and $y = \sin(\sin x)$ meet between 0 and $\frac{\pi}{2}$?
- Where are the solutions of $\sin^2 x = \sin x$ or $\sin^2 x = \sin 2x$? Can these equations be solved algebraically yet?

Thinking about Graph A could also lead into Big Trig.