Trig tables

Teacher notes

Why use this resource?

This resource can be used to strengthen students' understanding of links between trig function values in different quadrants and between different trig ratios of the same angle.

Deduction skills are strengthened also as students think what the column and row headings could be and start to exclude some possibilities.

The second table uses ratios formed from Pythagorean triples which will reinforce the use of these to maintain precision, rather than calculating and rounding the angle, which is often students' preferred approach. The task, being non-calculator, encourages students to think about use of inverse trig notation too.

Possible approach

Students could work individually to start with for a short time (say 2 minutes) before working in pairs. It may be helpful to ask students to think about what questions they have after looking at the grids initially.

With the blank tables students can set their own challenges, either reinforcing knowledge or thinking about other connections between functions and how much information is needed to form a unique solution. A teacher's knowledge of their class will determine how the student-generated grids are shared between students.

Key questions

Several questions are included in the resource, but in addition you might like to ask students

- What happens to the solution if we choose θ to be in the range $-\pi \leq \theta \leq \pi$?
- What happens if we extend the range of values of θ?
- Can we see links between the rows?

Possible extension

Some extension is built in with the blank grid exercise. Students could be encouraged to try the functions they are less familiar with.

Students could think about what the minimum amount of information needed to generate a unique solution would be.

Please note that there is a version of Trig tables here which has been modified to only use $\sin\theta$, $\cos\theta$ and $\tan\theta$.