

### Challenge 259: Space Clocks

You are an expert in telling the difference between clocks from Earth and clocks from the planet Kacalamas.

Clocks on Earth and Kacalamas are very similar. They each have two hands – a shorter hour hand and a longer minute hand, and no markings on the face apart from a single mark to tell you where the top of the clock is. The minute hand completes a full circle every hour, which is 60 minutes on both planets.

On Earth, there are 24 hours in a day, and the hour hand of a clock from Earth completes a full circle every 12 hours. However, on Kacalamas, there are 34 hours in a day, and so the hour hand of a clock from Kacalamas completes a full circle every 17 hours. All clocks are perfectly accurate, and the clocks from the two planets are otherwise identical.

You are sent a photo of a clock, and you must decide whether it is an Earth clock or a Kacalamas clock only from the position of the hands. For example, if the hour hand points directly downwards and the minute hand points directly upwards, then this could be an Earth clock with the time set to 06:00. But could it be a Kacalamasian clock? The only time when the hour hand of a Kacalamas clock points directly downwards is 08:30 (in Kacalamasian time), and at this time both hands will point downwards, so this clock could not be Kacalamasian. Hence you can deduce that the clock must be from Earth.

It is not always possible to identify from a single image where a clock is from. For example, a clock showing 12:00 on Earth could instead be a Kacalamasian clock showing 17:00.

How many ambiguous hand positions are there, and what times do they correspond to on a clock from Earth?