

Broken Plate Mystery

A famous Archaeologist named Indiana Jones has found a mysterious plate in his discoveries. However, this plate was broken and only a small part of it remains. Jones believes this plate was used in the 1900's by the royal family and can be of great value if we find out more. Jones uses chords along the edge to help. Use your amazing math skills to determine what the diameter and circumference of the plate would be if it was intact. Round your answers to the nearest tenth.

Explain **in detail** your process of finding the center of the plate, use **at least 2 different methods** to prove your point. Once you have found the exact dimensions (**diameter, radius and circumference**) of the plate, replicate this plate to a perfect scale. Please **label the center of the circle, the radius, and the circumference**.

Once you have the circle of the plate, estimate what angles the breaks have taken place at. Using straight lines to estimate, determine possible breakage lines. Using these estimations demonstrate your understanding of the relationship of angles within a circle (**congruent angles, inscribed angles and central angles**).

Once you are done, feel free to colour in your plate. This is not necessary step, but would be nice.

Formula for the circumference of a circle is πd

Marking Guide:

Uses Mathematical Reasoning to analyze and solve problems

- How do you find the centre of the plate

Develops mathematical procedures and strategies for computation

-Have you found the correct diameter, radius and circumference, given your initial circle

- Have you demonstrated correct understanding of central angle, inscribed angle and congruent angle relationships

Models, represents, and communicates math ideas

- Can I follow your thought process