π IN THE SKY⁵

Can you size up this faraway planet not with your eyes but with math?
A slice of pi will help you reveal this mystery like a NASA space explorer.

Explore the full NASA Pi Day Challenge at:
jpl.nasa.gov/edu/nasapidaychallenge

SOLAR SLEUTH

Exoplanets are worlds that orbit other stars. Using the Kepler Space Telescope, scientists can study distant stars and search for the exoplanets around them. When Kepler measures repeated dips in the brightness of a star, it can mean that an exoplanet is passing in front of that star from Kepler's point of view. Scientists can then determine the size of the exoplanet based on how much the star's light dipped when the planet passed in front of it.

This dip in brightness detected by Kepler is expressed as a percentage of the star's light that is blocked by the planet – with large planets blocking out more of the star's light and small, Earth-size planets blocking less. This percentage equals the ratio of the area of the planet's disk to the area of the star's disk. If Kepler detects a 0.042% drop in brightness from the star Kepler-186, which has a disk area of 416,000,000,000 km², **what is the radius of the exoplanet, known as Kepler-186f?**

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exoplanets.nasa.gov

BRIGHTNESS

TIME