Jet Propulsion Laboratory
California Institute of Technology

π IN THE SKY 2

Pi is back in our skies, helping mathematical sleuths such as yourself solve stellar problems -- like this one: Discover just how powerful -- or faint -- our most distant spacecraft's voice can be. Remember, pi leads the way.

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jpl.nasa.gov/edu/piday2015

HEAR HERE

The twin Voyager spacecraft, which launched in 1977, are the most distant human-made objects in space. It takes more than 18 hours for a signal from the 12.5-watt X-band transmitter on Voyager 1 to reach Earth, nearly 131 astronomical units away (one astronomical unit, AU, is equal to about 150,000,000 kilometers). The Voyager high-gain antenna, a circular parabolic reflector, transmits a circular radio signal about 0.5 degrees wide.

At the current distance, what fraction of the Voyager 1 radio beam is received on Earth by a 70-meter-diameter antenna at NASA's Deep Space Network (DSN)?

How many of the original 12.5 watts are received by the DSN antenna?

LEARN MORE ABOUT THE MISSIONS
voyager.jpl.nasa.gov
deepspace.jpl.nasa.gov