NOTE:

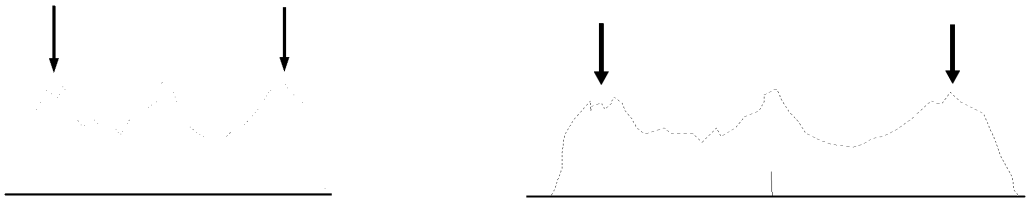
This document contains both the pre- and post- test and the pages are labeled accordingly.

The Measurement of the Rotation of Mercury
Pre-test

Name _____ **Date** _____
Graduation Date _____ **Major** _____

1. How does radar tell us an object is moving?

2. Here are graphs of echoes from two different rotating planets.

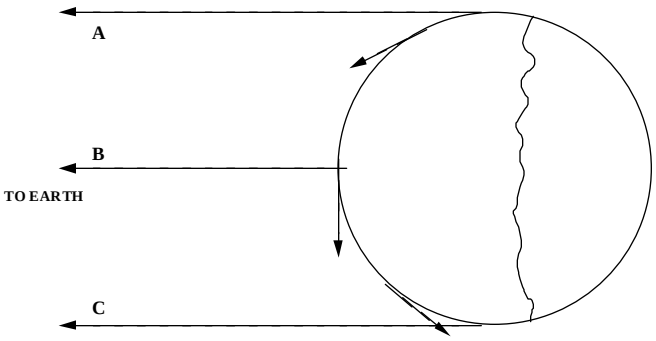


Planet A **Planet B**

a. Which planet is spinning faster ? Explain your answer.

b. Which planet has the shorter period of rotation?

3. A radar signal is sent from earth towards the planet. Using the diagram below, indicate on the diagram:



a. which echo reaches the earth first?

b. which echo comes from the approaching edge of the planet?

c. which echo comes from the receiving edge of the planet?

4. Using the diagram in question 3, which echo is red-shifted to a longer wavelength or lower frequency?

5. Below are two diagrams illustrating Mercury at different distances from the Earth. You are operating a radar telescope from Earth. A signal is sent. In which diagram would the return echo take longer to receive?.

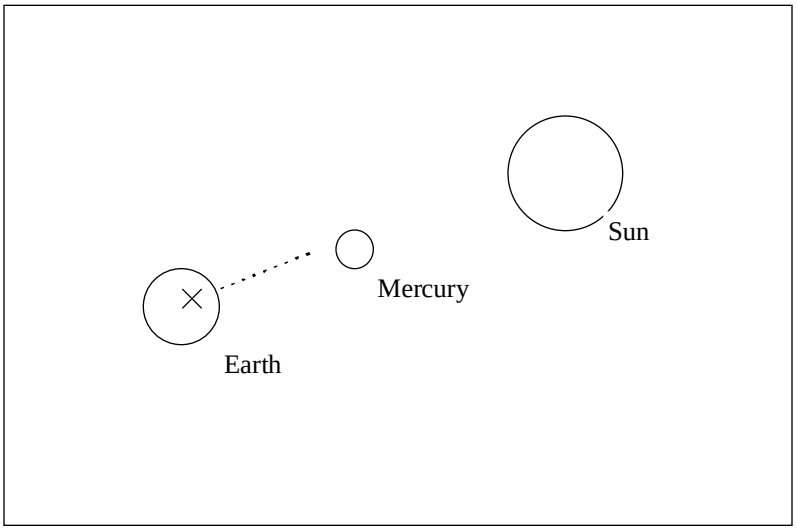


Figure 1

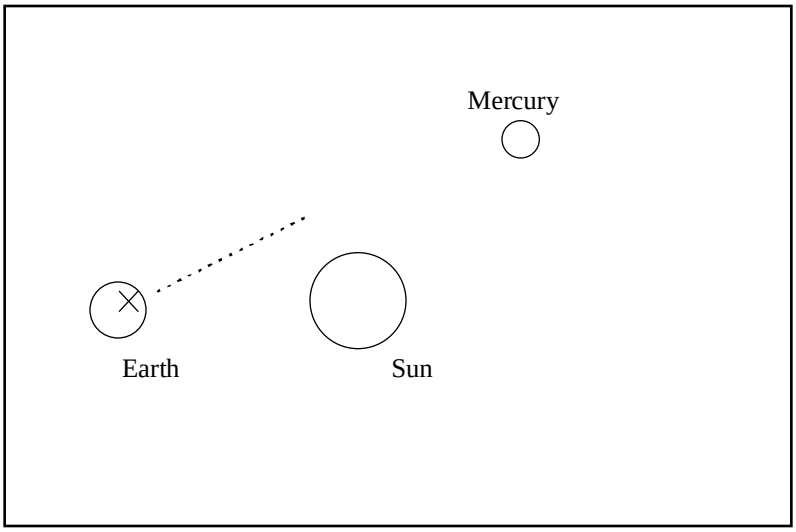


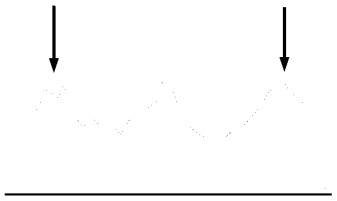
Figure 2

The Measurement of the Rotation of Mercury
Post-test

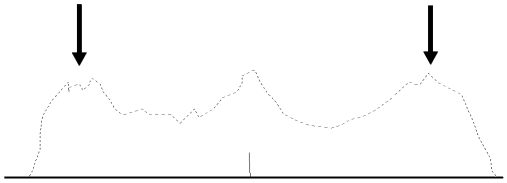
Name _____ **Date** _____
Graduation Date _____ **Major** _____

1. How does radar tell us an object is moving?

2. Here are graphs of echoes from two different rotating planets.



Planet A

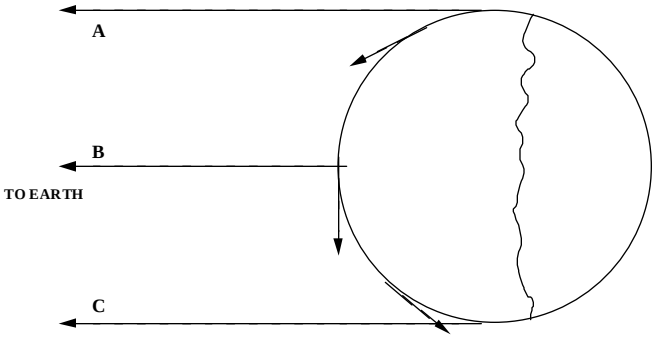


Planet B

a. Which planet is spinning faster ? Explain your answer.

b. Which planet has the shorter period of rotation?

3. A radar signal is sent from earth towards the planet. Using the diagram below, indicate on the diagram:



a. which echo reaches the earth first?

b. which echo comes from the approaching edge of the planet?

c. which echo comes from the receiving edge of the planet?

4. Using the diagram in question 3, which echo is red-shifted to a longer wavelength or lower frequency?

5. Below are two diagrams illustrating Mercury at different distances from the Earth. You are operating a radar telescope from Earth. A signal is sent. In which diagram would the return echo take longer to receive?.

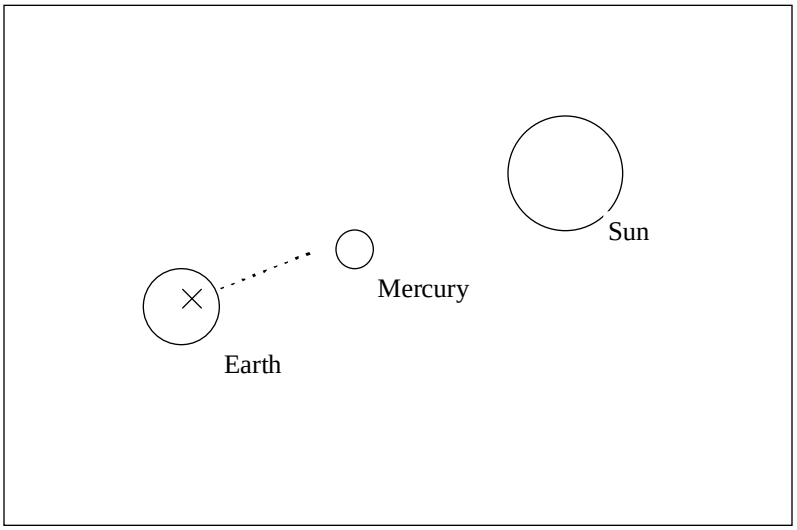


Figure 1

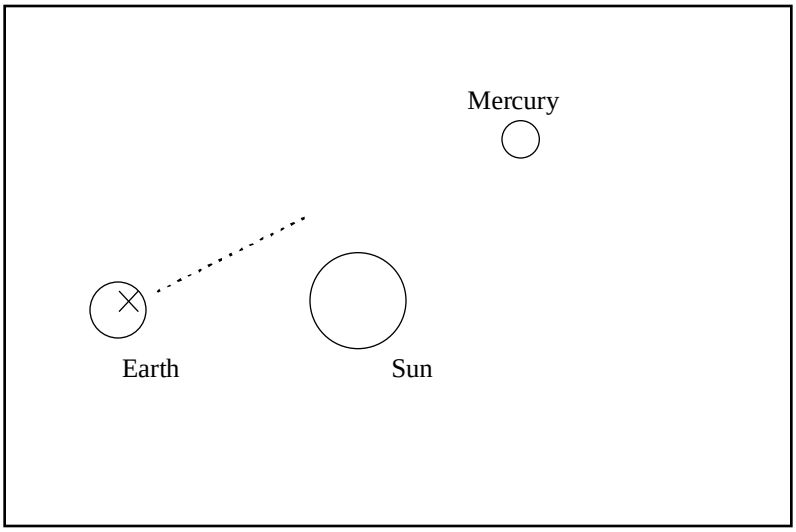


Figure 2