

Name: _____ Date: _____

m_r^β **Physics Practice: A Quick History of the Speed of Light**

1. Galileo, famous for studying mechanics and the motion of planets, also wondered whether light was finite or infinite in speed.

a. Describe how Galileo attempted to measure the speed of light.

b. What did Galileo conclude?

2. Ole Rømer, a Danish astronomer, measured the speed of light in 1676.

a. Describe Rømer's method.

b. How fast was light, according to Rømer's observations?

3. Albert Michelson began making very careful measurements of the speed of light in the late 1870s, and found it to be approximately 299,940 km/s, or 186,380 miles/second. Today, the speed of light is *exactly* 299,792,458 m/s.

a. What does *exactly* mean to a physicist?

b. Why can we say that light is exactly 299,792,458 m/s?

c. Using that speed, find exactly how many meters light travels in one hour.

d. Find the exact speed of light in miles/hour.

e. Calculate how long it takes light from our moon to reach earth. Is this exact or approximate?