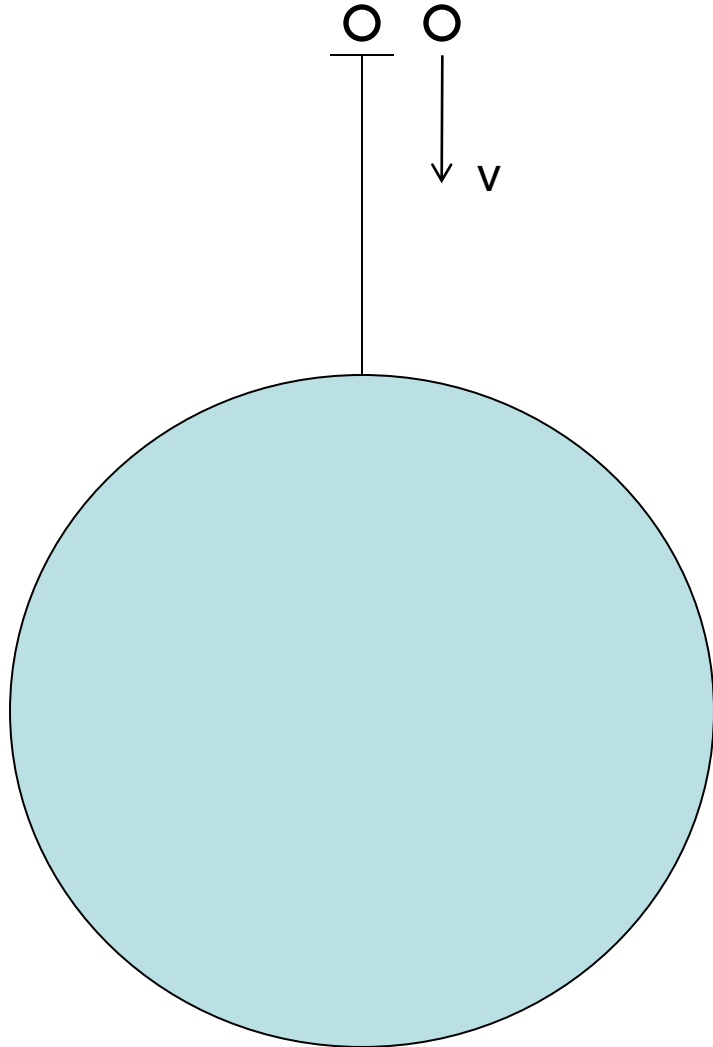


Principle of Equivalence:

In a local inertial frame, all effects of gravity are absent and all the laws of physics are the same as in a true inertial reference frame.

In an accelerated reference frame, far from any gravitating masses there is an apparent gravitational field, and all the laws of physics are the same as though the reference frame were at rest in near a gravitating body.

A moving clock passes by a stationary clock. On the stationary clock, a time interval $d\tau$ is measured. How long was this interval as measured by the moving clock?

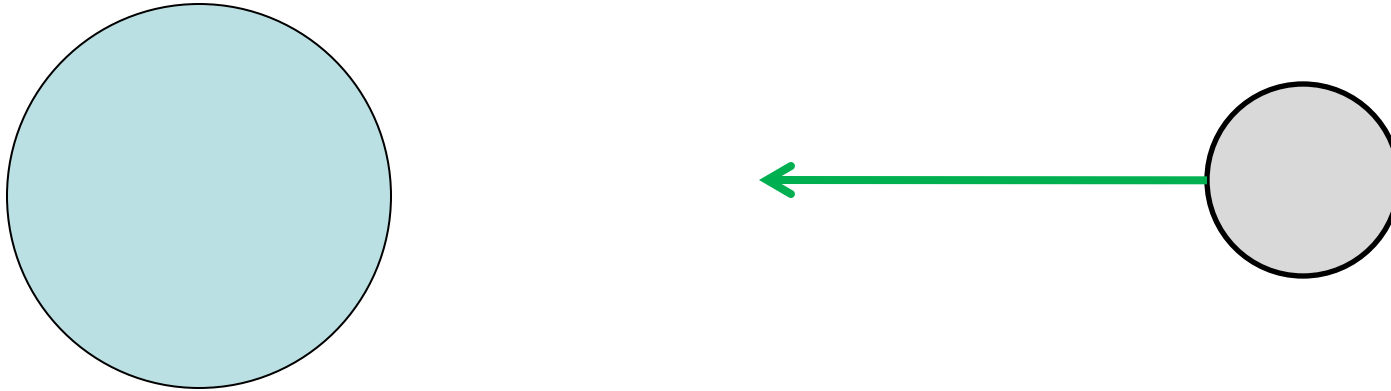


a) $d\tau$

b) $d\tau (1-v^2/c^2)^{1/2}$

c) $d\tau (1-v^2/c^2)^{-1/2}$

If a laser beam is fired at the earth from the surface of the moon, will the detected light be red-shifted or blue-shifted or neither at the surface of the earth? Consider the moon to be at rest with respect to the earth.

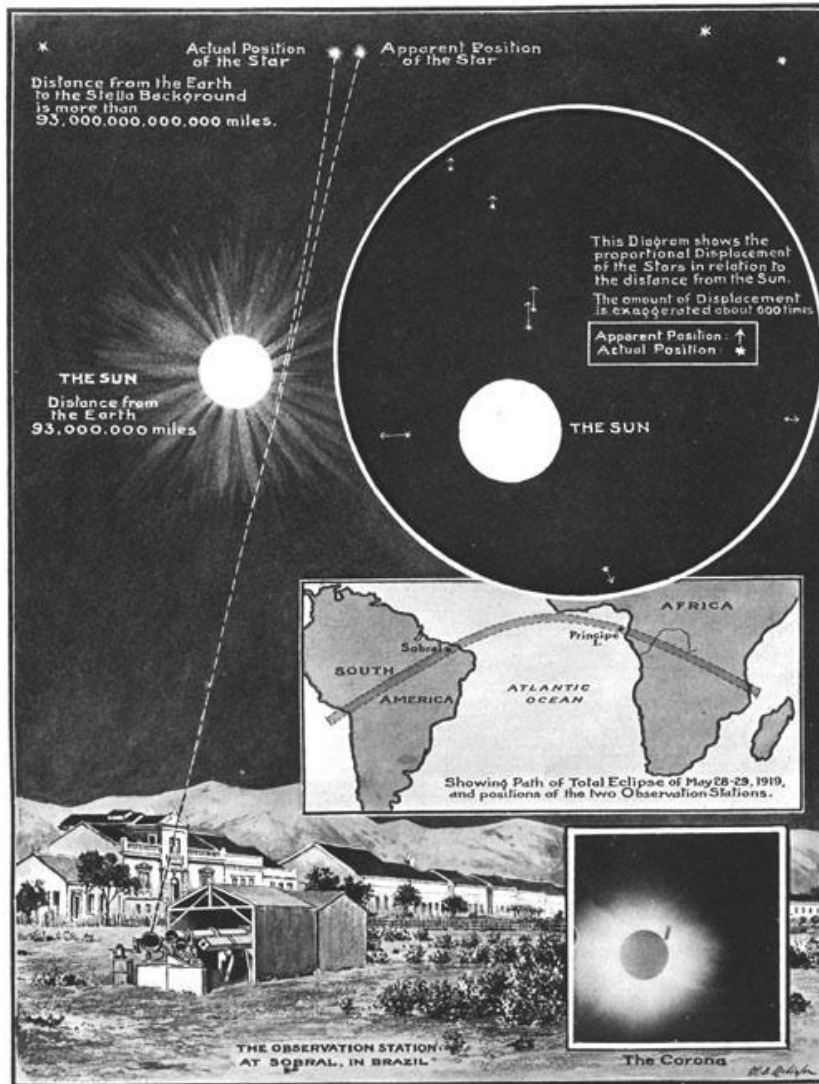


a) Red-shifted

b) Blue-shifted

c) neither

First Observation of the Bending of Light



“The eclipse was visible from equatorial regions on both sides of the Atlantic; Eddington sent one team to Sobral in Brazil, and went himself to the African island of Príncipe. Stars in the Hyades cluster were behind the sun during the eclipse, and were appeared to shift from their true positions by 1.75 arcseconds. This gravitational deflection of light by the sun's mass provided the first experimental verification of [Albert Einstein](#)'s theory of general relativity. Eddington's persistence and scientific conviction in pursuing the expedition were largely responsible for Einstein's fame (M. Stanley, 2007).”

Taken from the 22 November 1919 edition of the Illustrated London News.