

Physics 241  
Problem Set 2  
(Due 11/4/1432 H)

Name:

Number:

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1. A spaceship, moving away from earth at a speed of  $0.900c$ , report back by transmitting at a frequency (measured in the spaceship frame) of 100 MHz To what frequency must earth receivers be tuned to receive the report?

2. A spaceship is moving away from earth at speed  $0.02c$ . A source on the rear of the ship emits light at wavelength 450 nm according to someone on the ship. What (a) wavelength and (b) color (blue, green, yellow, or red) are detected by someone on earth watching the ship?