
PHYS 1110 Worksheet: Doppler effect

Doppler shift

$$f_D = f_S \frac{v - v_D}{v - v_S}$$

Problems



Find the Doppler frequencies at the detector f_D in terms of the source frequency f_S for the following scenarios:

- a. $v_s = v_d = 0$
- b. $v_s = 0$; $v_d = -0.1 v$
- c. $v_s = +0.1 v$; $v_d = 0$
- d. $v_s = 0$; $v_d = +0.1 v$
- e. $v_s = -0.1 v$; $v_d = 0$
- f. $v_s = +0.1 v$; $v_d = +0.1 v$
- g. $v_s = +v$; $v_d = 0$
- h. $v_s = -v$; $v_d = 0$
- i. $v_s = 0$; $v_d = +v$
- j. $v_s = 0$; $v_d = -v$