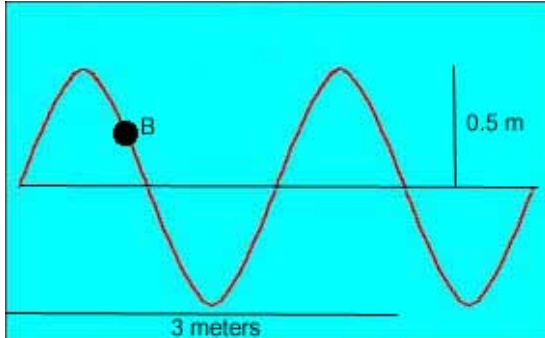


Honors Physics Final Exam Review: June 2018

Part II TYPE questions

1. The wave shown has a frequency of 10 Hz.



(A) Find the amplitude, wavelength, period, and speed.

(B) Label point(s) which are in phase with point B.

2. (A) A beam of light enters water from air at an angle of incidence of 20° . Calculate the angle of refraction.

(B) A beam of light moves from water into flint glass. Will it bend toward or away from the normal?

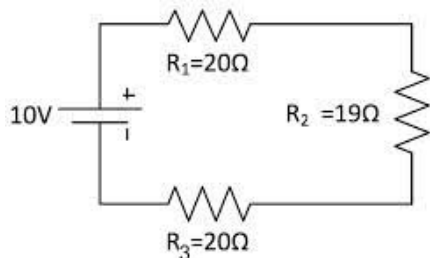
(C) In which of the substances listed does light travel the slowest? (air, water, flint glass, diamond)

3. An object which is 3 cm tall is located 5 cm from a concave mirror which has a radius of 2 cm. Find the location and the size of the image. Draw a diagram and use the formula. Is the image real or virtual?

4. Repeat for a convex lens

5. Coulomb's law problem.

6. Series Circuit problem. Find R_t , I_t , V_1, V_2, V_3



1 **Answers** $A = 0.5 \text{ m}$; Wavelength = 2 m; Period = 0.1 s; Speed = 20 m/s

2 **Answers:** A= 15 degrees; B= toward; C = diamond

3. **ANSWERS:**

$D_i = 1.25 \text{ cm}$; $S_i = 0.75 \text{ cm}$; real

4. Repeat for a convex lens if $S_o = 2 \text{ cm}$, $f = 10 \text{ cm}$, $D_o = 30 \text{ cm}$

ANSWERS: $D_i = 15 \text{ cm}$; $S_i = 1 \text{ cm}$

5. Coulomb's law problem.

ANSWER: Watch the videos. Also: be aware that you might need to solve for the force, or a charge, or the distance. It is just algebra!

6. **ANSWERS:** $R_t = 59 \text{ ohms}$; $I_t = 0.169 \text{ A}$; $V_1=V_3 = 3.38 \text{ V}$; $V_2 = 3.21 \text{ V}$