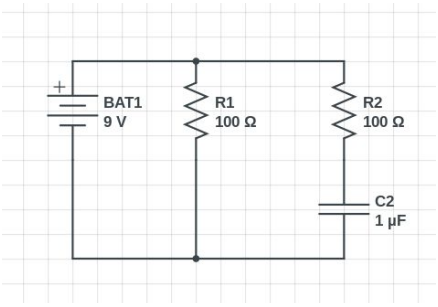
AP questions

1. A light ray traveling through air, strikes the surface of a body of fluid, and the ray of light then begins traveling through the fluid. If the ray of light from air hits the surface of the fluid at an angle of 60 from the horizontal, then how far from the horizontal will the ray of light in water be curve? nair=1 and nfluid=1.33
    a. 135.84
    b. 67.92
    c. 33.96
    d. 22.96

2. A light ray is traveling through air at a 30 degree angle to the vertical. It passes into water and 1/2 its angle to the vertical. What is the index of refraction of water given the descriptions above? θair=1.00
    a. 1.93
    b. 1.83
    c. 1.72
    d. 1.62

3. A beam of light goes from water to air. The light refracts
    a. Always
    b. Sometimes
    c. Never

4. Use the following circuit for this question:

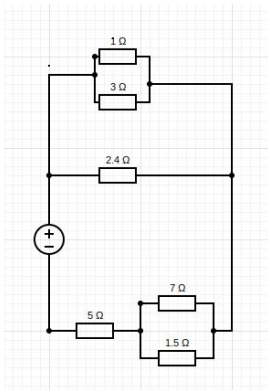


    How does the current change through R1 over time?
    A. Increase
    B. Decrease
    C. Stay the same

5. The original light ray shines from air into a fluid (with n=1.31) and the light ray bends with a certain angle of refraction. If the fluid is changed to a piece of glass (n=1.589) will the angle of the light that shines through it refract with a:
        A. Larger angle
        B. Smaller angle

C. imaginary angle
D. It doesn't refract, instead it reflects

6.



Look at the circuit in the diagram above. What is the total resistance of the circuit with these values stated below?

A=1 ohms
B=3 ohms
C=2.4 ohms
D=5 ohms
E=7 ohms
F=1.5 ohms
Total Resistance _____ ohms

A. 3.807
B. 4.807
C. 5.807
D. 6.807
E. 100.807

7. The light goes through the fiber optic cable with n=1.44 gets to the end and exits into air. If the angle of incidence on the end of the fiber is 60 degrees, what is the angle of refraction outside the fiber?

A. The light does not exit the fiber at this point
B. 90 degree
C. 80 degree
D. 70 degree

8. Continued what if the angle of incidence on the end of the fiber is changed to 50 degrees, then what will the new angle of refraction outside the fiber approximately be? (in degrees)
    A. 58
    B. 68
    C. 78
    D. 88

KEY

1. B
2. A
3. B
4. C
5. B
6. D
7. A
8. D