(1) A burglar alarm is wailing with a frequency of 1200 hertz. What frequency does a cop hear who is driving towards the alarm at a speed of 40.0 m/s?

(2) With reference to the above problem, what frequency would the burglar hear, if he was running away from the alarm at a speed of 10 m/s?

(3) A cop cars siren has a frequency of 700. hertz. If you are standing on the sidewalk as the cop car approaches you at a speed of 15.0 m/s, what frequency would you hear?

(4) In the previous problem, what frequency would you hear if the cop were driving away from you at a speed of 25 m/s?

(5) An alarm clock is dropped off the edge of a tall building. You, standing directly under it, hear a tone of 1350 Hz coming from the clock at the instant it hits the ground (you jumped out of the way at the last moment-whew!) Since you know the building is 25.0 m tall, you can find out what the frequency of the alarm would be if you had just held it in your hands. What would that frequency be?