Second midterm PRACTICE

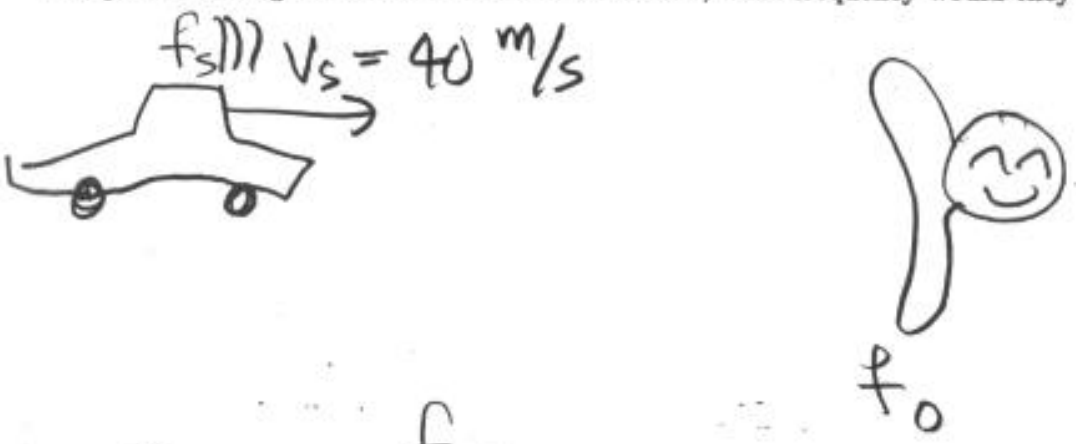
Physics 6B
Prof. Harry Nelson

Winter 97

NAME Solutions

3. A listener hears a tone of frequency $f_O = 100\text{Hz}$ coming from a car that drives toward the listener with speed $v_S = 40\,\text{m/s}$.

If a person sitting on the car heard the same tone, what frequency would they hear?



$$f_o = \frac{f_s}{1 - \frac{V_s}{V}}$$

$$f_s = \left(1 - \frac{V_s}{V}\right) f_o = \left(1 - \frac{40}{400}\right) \cdot 100$$

$$\boxed{f_s = \frac{360}{400} \cdot 100 = 90 \text{ Hz}}$$