The Doppler Effect Notes

<https://www.youtube.com/watch?v=p-hBCcmCUPg>

<https://www.youtube.com/watch?v=h4OnBYrbCjY>



Formulas:

$$F\_{observed= \left(\genfrac{}{}{0pt}{}{v}{v-vsource}\right)}f\_{source}$$

USE WHEN OBJECT IS APPROACHING

|  |  |  |
| --- | --- | --- |
| Letters: | Meaning: | Measured in: |
| fobserved |  |  |
| v |  |  |
| Vsource |  |  |
| Fsource |  |  |

$$F\_{observed= \left(\genfrac{}{}{0pt}{}{v}{v+vsource}\right)}f\_{source}$$

USE WHEN OBJECT IS RECEDING

|  |  |  |
| --- | --- | --- |
| Letters: | Meaning: | Measured in: |
| fobserved |  |  |
| v |  |  |
| Vsource |  |  |
| Fsource |  |  |

Example 1:

The car in the video is honking its horn at a frequency of 9,000 Hz. If it's driving at 20 m/s what is the perceived frequency...

a) as the car approaches?

Formula:

Plug in numbers:

Solve:

Example 2: The car in the video is honking its horn at a frequency of 9,000 Hz. If it's driving at 20 m/s what is the perceived frequency...

b) as the car drives away?

Formula:

Plug in numbers:

Solve: