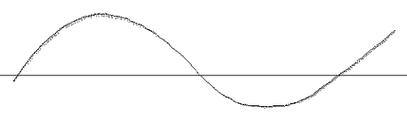
a) longest period

$T = \frac{1}{f}$ ∴ #1



b) lowest frequency

#1

c) highest frequency

#4

10) $f = \frac{1}{T} = \frac{\text{cycles}}{\text{time}}$ $T = \frac{1}{f} = \frac{\text{time}}{\text{cycles}}$

method A. $f = \frac{1}{12\,hr} \times \frac{1\,hr}{3600\,s} = \frac{1}{43\,200\,s} = 2.31 \times 10^{-5}\ Hz = f$

$43\,200\,s = T$

method B. $\frac{12\,hr}{1} \times \frac{3600\,s}{1\,hr} = 43\,200\,s = T$

Chapter 6
Review for Final Exam

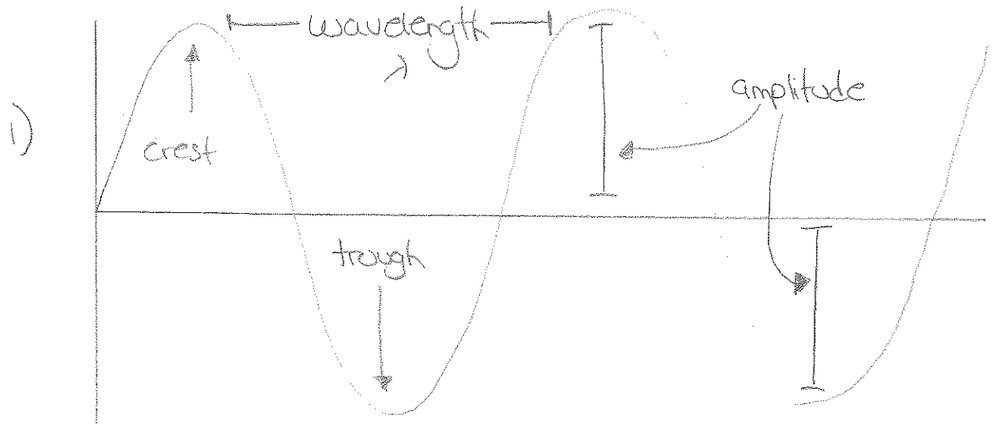
Formulas

$T = \frac{1}{f}$ $f = \frac{1}{T}$ T = period (s)

f = frequency (Hz)

$V = f\lambda$ $c = 3.00 \times 10^8\ m/s$

1)



2) $f = \frac{1}{T}$ $\frac{7680\ \text{vibrations}}{30\,s} \div 7680 = \frac{1}{3.9 \times 10^{-3}\,s}$

frequency? $256\ Hz$

period? 3.9×10^{-3}

3) $V = f\lambda$ $V = 340\ m/s$ $\lambda = 1.70\ m$

$340 = f(1.7)$

$\div 1.7$ $\div 1.7$

$200 = f$

$200\ Hz = f$

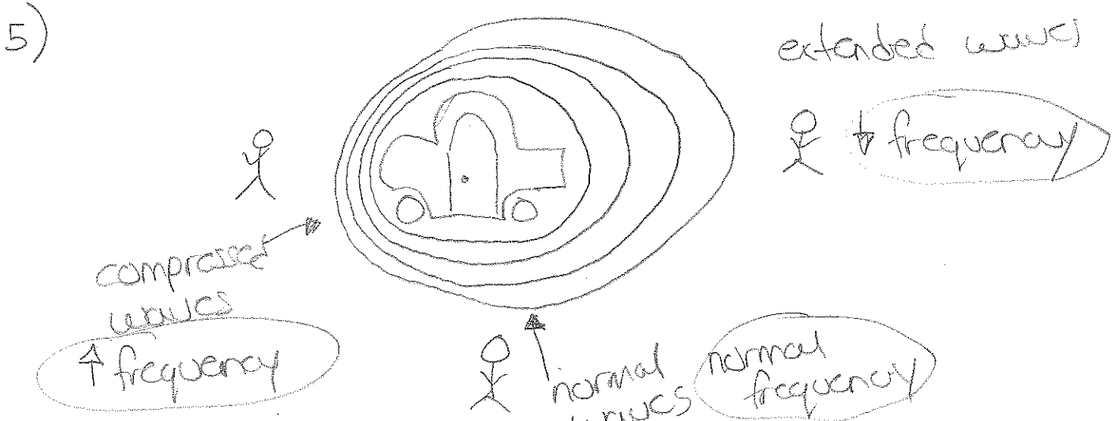
4) $V = 25\ cm/s \times \frac{1\ m}{100\ cm} = 0.25\ m/s$

$\lambda = 2.5\ cm \times \frac{1\ m}{100\ cm} = 0.025\ m$

$f = ?$ $\quad 0.25\ m/s = f(0.025)$

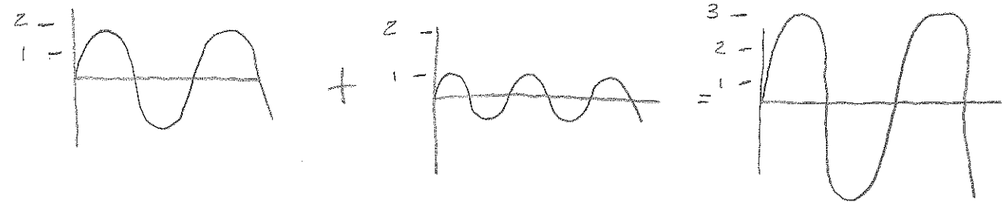
$\boxed{10\ Hz = f}$

5)

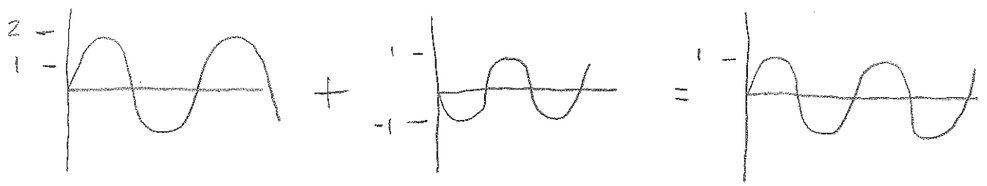


Doppler Affect: apparent change in frequency and wavelength of a wave that is perceived by an observer moving relative to the source of the wave

6) constructive waves



destructive waves



7) $V = 3.00 \times 10^8\ m/s \quad f = 60\ Hz \quad \lambda = ?$

$V = f\lambda \qquad 3.00 \times 10^8\ m/s = (60)(\lambda)$

$\div 60 \qquad \div 60$

$5.00 \times 10^6\ m/s = \lambda$

$\boxed{5.0 \times 10^6\ m/s = \lambda}$

8) $f = 2.2\ Hz \quad t = 8.0\ s \quad V = \frac{d}{t}$ - unknown?

$\lambda = 5.10 \times 10^{-4}$

$V = ?$

$V = (2.2\ Hz)(5.10 \times 10^{-4})$

$V = 1.122 \times 10^{-3}\ m/s$

$8.0\ s \times 1.122 \times 10^{-3}\ m/s = \frac{d}{8.0\ s} \times 8.0\ s$

$\boxed{d = 9.0 \times 10^{-3}\ m}$