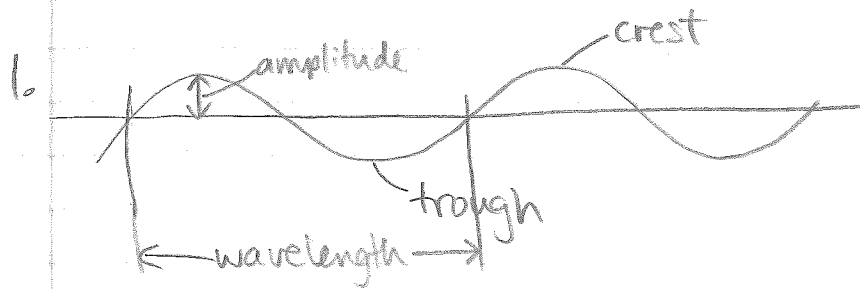


# CH6 Extra Practice



2.  $\frac{4.2\text{m}}{2} = \underline{\underline{2.1\text{m}}}$

3.  $v = 3.4 \times 10^2 \text{ m/s}$   
 $\lambda = ?$   
 $f = 256 \text{ Hz}$

$$\lambda = \frac{v}{f} = \frac{3.4 \times 10^2 \text{ m/s}}{256 \text{ Hz}} = \underline{\underline{1.3\text{m}}}$$

4.  $v = 3 \times 10^8 \text{ m/s}$   
 $f = ?$   
 $\lambda = 610 \times 10^{-9} \text{ m}$

$$f = \frac{v}{\lambda} = \frac{3 \times 10^8 \text{ m/s}}{610 \times 10^{-9} \text{ m}} = \underline{\underline{4.92 \times 10^{14} \text{ Hz}}}$$

5.  $f = \frac{3 \text{ times}}{1\text{s}} = 3 \text{ Hz}$   
 $v = \frac{4\text{m}}{1\text{s}} = 4 \text{ m/s}$

$$\lambda = \frac{v}{f} = \frac{4 \text{ m/s}}{3 \text{ Hz}} = \underline{\underline{1.3\text{m}}}$$

6.  $f = ?$   
 a)  $T = 100\text{s} \rightarrow f = \frac{1}{T} = \frac{1}{100\text{s}} = \underline{\underline{0.010\text{Hz}}}$

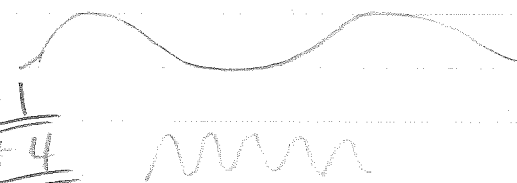
b)  $T = 0.5\text{s} \rightarrow f = \frac{1}{0.5\text{s}} = \underline{\underline{2\text{Hz}}}$

c)  $T = 1.0 \times 10^{-2} \rightarrow f = \frac{1}{1.0 \times 10^{-2}} = 100 \text{ Hz} = \underline{\underline{1.0 \times 10^2 \text{ Hz}}}$

7.a) longest period # 1

b) lowest frequency # 1

c) highest frequency # 4



8.  $T = \underline{12 \text{ hours}}$  (for hour hand to go around once)

9.  $T = \underline{1 \text{ minute}}$  (for second hand to go around once)

10. a)  $f = \frac{36 \text{ waves}}{3 \text{ min} \times 60 \text{ s/min}} = \underline{0.20 \text{ Hz}}$

b)  $T = \frac{1}{f} = \frac{1}{0.2 \text{ Hz}} = \underline{5.0 \text{ s}}$

11.  $f = \frac{33 \text{ revolutions}}{1 \text{ min} \times 60 \text{ s/min}} = 0.55 \text{ rev/s}$

$$T = \frac{1}{f} = \frac{1}{0.55 \text{ Hz}} = \underline{1.8 \text{ s}} \text{ for one revolution}$$

12. increase  $f$ ,  $\lambda$  decreases

13.  $\lambda = \frac{2.5 \text{ m/s}}{34 \text{ Hz}} = \underline{0.074 \text{ m}}$

14.  $f = \frac{5 \text{ km/h} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ h}}{3600 \text{ s}}}{25 \text{ cm} \times \frac{1 \text{ m}}{100 \text{ cm}}} = \underline{5.6 \text{ Hz}}$

15.  $v = f\lambda = 200 \text{ Hz} (35 \text{ m}) = \underline{7.0 \times 10^3 \text{ m/s}}$

16.  $\lambda = \frac{-100 \text{ m}}{250} = \underline{0.400 \text{ m}}$

17.  $f = \frac{3.0 \times 10^8 \text{ m/s}}{600 \times 10^{-9} \text{ m}} = \underline{5.0 \times 10^{14} \text{ Hz}}$  colour: orange (bordering on yellow)

18. a wave's frequency remains the same

19. constructive interference will occur

