2. $v = \dfrac{d}{t}$

$= \dfrac{4.60\text{ m}}{2.00\text{ s}}$

$= 2.30\text{ m/s}$

3. $v = \mu f$

$f = \dfrac{2.5\text{ m/s}}{5.0\text{ m}}$

$= 0.50\text{ Hz}$

$T = \dfrac{1}{f}$

$= \dfrac{1}{0.50\text{ Hz}}$

$= 2.0\text{ s}$

4. Frequency is the number of waves per second.

$\dfrac{9.5\text{ waves}}{60\text{ s}} = \dfrac{f}{1\text{ s}}$

$f = 0.16\text{ Hz}$

5. $f = \dfrac{1}{T}$

$= \dfrac{1}{1.00\times10^{-2}\text{ s}}$

$= 1.00 \times 10^{2}\text{ Hz}$

$v = \mu f$

$\mu = \dfrac{v}{f}$

$= \dfrac{335\text{ m/s}}{1.00\times10^{2}\text{ Hz}}$

$= 3.35\text{ m}$

6. $v = \mu f$

$\mu = \dfrac{v}{f}$

$= \dfrac{3.00\times10^{8}\text{ m/s}}{1.00\times10^{6}\text{ Hz}}$

$= 3.00 \times 10^{2}\text{ m}$

7. $\dfrac{4.0\times10^{1}\text{ waves}}{300\text{ s}} = \dfrac{f}{1\text{ s}}$

$f = 0.133\text{ Hz}$

$v = \mu f$

$= (4.0\text{ m})(0.133\text{ Hz})$

$= 0.53\text{ m/s}$

8. $v = \mu f$

$f = \dfrac{v}{\lambda}$

$= \dfrac{3.00\times10^{8}\text{ m/s}}{5.00\times10^{-7}\text{ m}}$

$= 6.00 \times 10^{14}\text{ Hz}$

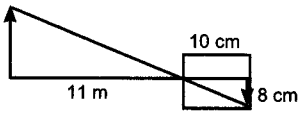
$f = \dfrac{1}{T}$

$T = \dfrac{1}{6.00\times10^{14}\text{ Hz}}$

$= 1.67 \times 10^{-15}\text{ s}$

Lesson 2–Shadows and Images

1.

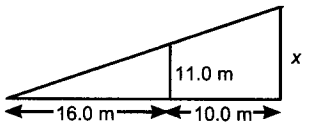


$\dfrac{\text{height of large }\Delta}{\text{base of large }\Delta} = \dfrac{\text{height of small }\Delta}{\text{base of small }\Delta}$

$\dfrac{8.0\text{ cm}}{10.0\text{ cm}} = \dfrac{x}{11\text{ m}}$

$x = 8.8\text{ m}$

2.



$\dfrac{\text{height of large }\Delta}{\text{base of large }\Delta} = \dfrac{\text{height of small }\Delta}{\text{base of small }\Delta}$

$\dfrac{11.0\text{ m}}{16.0\text{ m}} = \dfrac{x}{26.0\text{ m}}$

$x = 17.9\text{ m}$