

**Answer 1:**

Use the following facts:

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$1 \text{ min} = 60 \text{ s}$$

$$30 \frac{\text{km}}{\text{hr}} = 30 \frac{\text{km}}{\text{hr}} \times \frac{1000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ min}}{60 \text{ s}}$$

Multiply the numbers and cancel the units

$$30 \text{ km/hr} = 8.3 \text{ m/s ( to 2 significant figures)}$$

**Answer 2:**

Since we know the cube root of 64 is 4 first convert number to a simpler form:

$$6.4 \times 10^{-17} = 64 \times 10^{-18}$$

Now take the cube root

$$(64 \times 10^{-18})^{1/3} = 64^{1/3} \times (10^{-18})^{1/3} = 4 \times 10^{-18/3} = 4 \times 10^{-6}$$

$$4 \times 10^{-6} = 0.000004$$

**Answer 3 :**

$$1 \text{ billion} = 1000 \text{ million} = 10^9$$

$$\begin{aligned} 14 \text{ billion years} &= 14 \times 10^9 \times 365 \times 24 \times 60 \times 60 \text{ seconds} \\ &= 1.4 \times 3.65 \times 2.4 \times 3.6 \times 10^{16} \text{ seconds} \\ &\approx 10^{17} \text{ seconds} \end{aligned}$$