

3E HW: HL # 3, 5, 7 beh, 9, 11 SL # 3, 6, 8 beh, 10, 12

3.) a.)  $47,450,000 = 4.745 \times 10^7 \text{ kg}$

b.)  $0.003 = 3.0 \times 10^{-3} \text{ m}$

c.)  $2,599,000 = 2.599 \times 10^6$

d.)  $0.00000047 = 4.7 \times 10^{-7} \text{ m}$

5.)  $7.4 \times 10^9 = 7,400,000,000$

b.)  $1.12 \times 10^{-2} = 0.0112 \text{ kg}$

c.)  $5 \times 10^{-7} = 0.0000005 \text{ kg}$

d.)  $7.3 \times 10^6 = 7,300,000 \text{ kg}$

7.) b.)  $4 \times 10^{-8} = 4.0 \times 10^{-8}$

e.)  $0.00412164 = 4.12164 \times 10^{-3}$

h.)  $2.63 \times 10^{-6} = 2.63 \times 10^{-6}$

9.)  $4.6 \times 10^{-7} + 2.15 \times 10^{-6} = 2.61 \times 10^{-6} = 2.61 \times 10^{-6}$

11.)  $2.9979 \times 10^8 \text{ ms}^{-1}$  (meters per second)

a.) 1 minute = 60 seconds  $\therefore (2.9979 \times 10^8)(60) \approx 1.80 \times 10^{10}$

1 day = 24(60)(60) = 86,400 seconds  $\therefore (2.9979 \times 10^8)(86,400) = 2.59 \times 10^{13}$

b.)  $(2.59 \times 10^{13})(365.25) = 9.46 \times 10^{15} \text{ m}$

c.)  $4.22(9.46 \times 10^{15}) = 3.99 \times 10^{16} \text{ m}$

d.)  $(980,000)(9.46 \times 10^{15}) = 9.27 \times 10^{21} \text{ m}$

(i.)  $26 \text{ cm} = 0.26 \text{ m}$   
 $1,500,000(9.46 \times 10^{15})$

$\frac{0.26}{2} = 5.46 \times 10^{22} \text{ m}$

(ii.)  $100,000 \text{ km h}^{-1} = (100,000)(1,000) \text{ m h}^{-1} = 100,000,000 \text{ m h}^{-1}$

$\therefore (100,000)(9.46 \times 10^{15})$

$\approx (1.10^8) = 9.46 \times 10^{12} \text{ hours}$

$\therefore 10^2 \div 24$

$\approx (3.94 \times 10^{11}) \text{ days} \div 325.25$

$\approx 1.08 \times 10^9 \text{ years} \leftarrow$

$\approx 1.08 \text{ billion years}$