Time equals distance divided by rate: $\dfrac{1.4 \times 10^{12}}{3 \times 10^8}$

Regroup and divide the numbers: $\left(\dfrac{1.4}{3}\right)\left(\dfrac{10^{12}}{10^8}\right) = (0.47)\left(\dfrac{10^{12}}{10^8}\right)$

Use the quotient rule: $0.47 \times 10^{12-8} = 0.47 \times 10^4$

Convert 0.47 to 4.7×10^{-1}, regroup, and multiply: $4.7 \times \left(10^{-1} \times 10^4\right) = 4.7 \times 10^{-1+4} = 4.7 \times 10^3$