

- 1) Convert 1.2×10^{-3} to decimal notation.
- 2) 0.00325×10^{-8} cm can also be expressed in mm as
- 3) The number 0.003010 has
- 4) What is $\frac{0.674}{0.74}$ to the proper number of significant figures?
- 5) The speed of a wave pulse on a string depends on the tension, F , in the string and the mass per unit length, μ , of the string. Tension has SI units of $\text{kg} \cdot \text{m} \cdot \text{s}^{-2}$ and the mass per unit length has SI units of $\text{kg} \cdot \text{m}^{-1}$. What combination of F and μ must the speed of the wave be proportional to?
- 6) The position x , in meters, of an object is given by the equation $x = A + Bt + Ct^2$, where t represents time in seconds. What are the SI units of A , B , and C ?
- 7) What is the value of $\pi(8.104)^2$, written with the correct number of significant figures?
- 8) What is the sum of $1.53 + 2.786 + 3.3$ written with the correct number of significant figures?
- 9) What is $56 + (32.00)/(1.2465 + 3.45)$ written with the correct number of significant figures?
- 10) The period of a pendulum is the time it takes the pendulum to swing back and forth once. If the only dimensional quantities that the period depends on are the acceleration of gravity, g , and the length of the pendulum, ℓ , what combination of g and ℓ must the period be proportional to? (Acceleration has SI units of $\text{m} \cdot \text{s}^{-2}$).
- 11) The height of the ceiling in a typical home, apartment, or dorm room is closest to
- 12) How many nanoseconds does it take for a computer to perform one calculation if it performs 6.7×10^7 calculations per second?
- 13) Approximately how many times does an average human heart beat in a lifetime?
- 14) The wavelength of a certain laser is 0.35 micrometers, where 1 micrometer = 1×10^{-6} m. Express this wavelength in nanometers.
- 15) The mass of a typical adult woman is closest to
- 16) The shortest wavelength of visible light is approximately 400 nm. Express this wavelength in centimeters.
- 17) A plot of land contains 5.8 acres. How many square meters does it contain? [1 acre = 43,560 ft^2]

Answer Key

Testname: HW_CH1_MEASUREMENT

- 1) 0.0012
- 2) 3.25×10^{-10} mm.
- 3) 4 significant figures.
- 4) 0.91
- 5) F / μ
- 6) m, m, m
- 7) 206.3
- 8) 7.6
- 9) 63
- 10) $\sqrt{l/g}$
- 11) 200 cm.
- 12) 15 ns
- 13) 3×10^9
- 14) 3.5×10^2 nm
- 15) 75 kg.
- 16) 4×10^{-5} cm
- 17) 2.3×10^4 m²