Practice with Unit Prefixes – Fill in the Blanks

(See “Using Units” handout for the prefix definitions.)

Light travels at about 300000 **k**m per second (________x10 ─ m/s).

A fast processor in a cell phone operates at a 4 **G**Hz (_____x10 ─ Hz) clock frequency.

A 4 GHz clock in a cell phone produces “ticks” every 0.25 **n**s (______x10 ─ s).

In 250 **p**s (____x10 ─ s) light travels a distance of 7.5 **c**m (_____x10 ─ m).

In 1 **µ**s (_____x10 ─ s) light travels 0.3 **k**m (_____x10 ─ m).

Cell phones communicate at a frequency of about 1900 **M**Hz (______x10 ─ Hz).

A typical FM music station transmits at a frequency of 94 **M**Hz (______x10 ─ Hz).

A typical AM radio station transmits at 930 **k**Hz (______x10 ─ Hz).

Power lines use a frequency of only 60 Hz.

Infra-red light has a frequency of 100 **T**Hz (______x10 ─ Hz).

Green light has a frequency around 560 **T**Hz (______x10 ─ Hz).

A hydrogen nucleus (proton) is about 0.85 **f**m (____x10 ─ m) in size.

A hydrogen atom is 53 **p**m (_____x10 ─ m) in diameter, very much larger than a proton.

A C-60 buckyball molecule is 0.7 nm (______x10 ─ m) in diameter.

A hemoglobin molecule is 6.9 **n**m (______x10 ─ m) in diameter.

A flu virus is about 100 **n**m (______x10 ─ m) in diameter.

A typical bacterium is 1 **µ**m (______x10 ─ m) in size.

The smallest object visible to the human eye is about 60 **µ**m (______x10 ─ m) in size.

A quarter coin is 24.26 **m**m (_________x10 ─ m) in diameter.

A person’s hand is about 10 **c**m (______x10 ─ m) wide.

Mt. Everest, the tallest mountain in the world, reaches 8.848 **k**m (______x10 ─ m) above sea level.

The average radius of the earth is 6371 **k**m (_______x10 ─ m).

A computer backup storage unit can hold about 8 **T**B (______x10 ─ bytes) of data.

In South Korea, the average Internet connection speed in 2017 was 28.6 **M**b/s (_______x10 ─ bits/second).

A good camera has 8 **mega**pixels (______x10 ─ pixels) of color sensors, about the same as our eyes.

Practice with Unit Prefixes – Solutions

(See "Using Units" handout for the prefix definitions.)

Light travels at about 300000 **k**m per second (**300000**x10^{3} m/s) or (**3.00**x10^{8} m/s).

A fast processor in a cell phone operates at a 4 **G**Hz (**4.0**x10^{9} Hz) clock frequency.

A 4 **G**Hz clock in a cell phone produces "ticks" every 0.25 **n**s (**0.25**x10^{-9} s) or (**2.5**x10^{-10} s).

In 250 **p**s (**250**x10^{-12} s) or (**2.5**x10^{-10} s) light travels a distance of 7.5 **c**m (**7.5**x10^{-2} m).

In 1 **µ**s (**1.0**x10^{-6} s) light travels 0.3 **k**m (**0.3**x10^{3} m) or (**300** m).

Cell phones communicate at a frequency of about 1900 **M**Hz (**1900**x10^{6} Hz) or (**1.900**x10^{9} Hz).

A typical FM music station transmits at a frequency of 94 **M**Hz (**94**x10^{6} Hz) or (**9.4**x10^{7} Hz).

A typical AM radio station transmits at 930 **k**Hz (**930**x10^{3} Hz) or (**9.30**x10^{5} Hz).

Power lines use a frequency of only 60 Hz.

Infra-red light has a frequency of 100 **T**Hz (**100**x10^{12} Hz) or (**1.00**x10^{14} Hz).

Green light has a frequency around 560 **T**Hz (**560**x10^{12} Hz) or (**5.60**x10^{14} Hz).

A hydrogen nucleus (proton) is about 0.85 **f**m (**0.85**x10^{-15} m) or (**8.5**x10^{-16} m) in size.

A hydrogen atom is 53 **p**m (**53**x10^{-12} m) or (**5.3**x10^{-11} m) in diameter, very much larger than a proton.

A C-60 buckyball molecule is 0.7 **n**m (**0.7**x10^{-9} m) or (**7.0**x10^{-10} m) in diameter.

A hemoglobin molecule is 6.9 **n**m (**6.9**x10^{-9} m) in diameter.

A flu virus is about 100 **n**m (**100**x10^{-9} m) or (**1.00**x10^{-7} m) in diameter.

A typical bacterium is 1 **µ**m (**1.0**x10^{-6} m) in size.

The smallest object visible to the human eye is about 60 **µ**m (**60**x10^{-6} m) or (**6.0**x10^{-5} m) in size.

A quarter coin is 24.26 **m**m (**24.26**x10^{-3} m) or (**2.426**x10^{-2} m) in diameter.

A person's hand is about 10 **c**m (**10**x10^{-2} m) or (**1.0**x10^{-1} m) or (**0.10** m) wide.

Mt. Everest, the tallest mountain in the world, reaches 8.848 **k**m (**8.848**x10^{3} m) or (**8848** m) above sea level.

The average radius of the earth is 6371 **k**m (**6371**x10^{3} m) or (**6.371**x10^{6} m).

A computer backup storage unit can hold about 8 **T**B (**8.0**x10^{12} bytes) of data.

In South Korea, the average Internet connection speed in 2017 was 28.6 **M**b/s (**28.6**x10^{6} bits/second).

A good camera has 8 **mega**pixels (**8.0**x10^{6} pixels) of color sensors, about the same as our eyes.