

1
10
100
1,000
10,000
100,000

SKILLS & TECHNIQUES

Order of Magnitude & Scientific Notation

Problem Set

Problem 1: Scientific Notation and Animal Length Scales

Convert the following numbers from scientific notation to prefix notation. Then write the name of an animal whose length is on the same order of magnitude.

$$1 \times 10^{-3} \text{ m} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^{-2} \text{ m} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^{-1} \text{ m} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^0 \text{ m} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^1 \text{ m} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

Problem 1 Solution: Scientific Notation and Animal Length Scales

$$1 \times 10^{-3} \text{ m} = 1 \text{ mm} \rightarrow \text{flea}$$

$$1 \times 10^{-2} \text{ m} = 1 \text{ cm} \rightarrow \text{bee}$$

$$1 \times 10^{-1} \text{ m} = 10 \text{ cm} \rightarrow \text{frog}$$

$$1 \times 10^0 \text{ m} = 1 \text{ m} \rightarrow \text{pig}$$

$$1 \times 10^1 \text{ m} = 10 \text{ m} \rightarrow \text{whale}$$

Problem 2: Scientific Notation and Animal Speed Scales

Convert the following numbers from scientific notation to prefix notation. Then write an animal whose speed is on the same order of magnitude.

$$1 \times 10^{-3} \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^{-2} \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^{-1} \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^0 \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^1 \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

$$1 \times 10^2 \text{ m/s} = \underline{\hspace{2cm}} \rightarrow \underline{\hspace{2cm}}$$

Problem 2 Solution: Scientific Notation and Animal Speed Scales

$$1 \times 10^{-3} \text{ m/s} = 1 \text{ mm/s} \rightarrow \text{snail}$$

$$1 \times 10^{-2} \text{ m/s} = 1 \text{ cm/s} \rightarrow \text{sloth}$$

$$1 \times 10^{-1} \text{ m/s} = 10 \text{ cm/s} \rightarrow \text{spider}$$

$$1 \times 10^0 \text{ m/s} = 1 \text{ m/s} \rightarrow \text{dog (walking)}$$

$$1 \times 10^1 \text{ m/s} = 10 \text{ m/s} \rightarrow \text{horse}$$

$$1 \times 10^2 \text{ m/s} = 100 \text{ m/s} \rightarrow \text{Peregrine Falcon diving speed}$$

*These are just examples, answers will vary.

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