Distances, lengths, sizes

Object	Distance/length
Moon's circumference	$10921000\,\mathrm{m}$
Denver to Grand Junction (shortest distance)	$341181\,\mathrm{m}$
Length of a football field	$109.7\,\mathrm{m}$
Width of computer chip	$0.0030\,\mathrm{m}$
Width of flu virus	$0.000009\,\mathrm{m}$

Distances, lengths, sizes

Object	Distance/length (meters)	Distance/length (kilometers)
Moon's circumference	$10921000\,\mathrm{m}$	$10921\,\mathrm{km}$
Denver to GJ	$341181\,\mathrm{m}$	$341.181\,\mathrm{km}$
Length of a football field	$109.7\,\mathrm{m}$	$0.1097\,\mathrm{km}$
Width of computer chip	$0.0030\,\mathrm{m}$	$0.0000030\,\mathrm{km}$
Width of flu virus	$0.000009\,\mathrm{m}$	$0.000000009\,\mathrm{km}$

Question 1

Derived distance units are:

$$1\,\mathrm{km} = 1000\,\mathrm{m}$$

$$1\,\mathrm{mm} = 0.001\,\mathrm{m}$$

Which of the following is true regarding the length of any single object?

1. The length recorded in kilometers is a larger number than in meters.
2. The length recorded in kilometers is a smaller number than in meters.
3. The length recorded is the same number in all units.

Question 2

Consider

$$0.0001$$

Which of the following represents 0.0001?

1. 10^4
2. 10^3
3. 10^{-4}
4. 10^{-3}

Question 3

Consider

$$\frac{10^5 \times 10^{-2}}{10^4}$$

Which of the following does this yield?

1. 0.01
2. 0.1
3. 1
4. 10
5. 100

Question 4

Consider

$$10^3 \times 10^2$$

Which of the following does this yield?

1. 10^1
2. 10^2
3. 10^3
4. 10^5
5. 10^6

Question 5

Consider

$$98.7 \times 10^{-2}$$

Which of the following expresses this in decimal notation?

1. 9870
2. 987
3. 98.7
4. 9.87
5. 0.987

Question 6

Consider the number

$$0.00234$$

Which of the following is equivalent?

1. 2.34×10^{-3}
2. 2.34×10^{-2}
3. 2.34×10^{-1}
4. 2.34×10^{2}
5. 2.34×10^{3}