Scientific notation: 10 practice questions

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Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

Write each number in scientific notation.

(a) 45,000

(b) 0.0032

(c) 7,200,000

Question 2

Write each number as a basic numeral (an ordinary number).

(a) 6.1×10^{5}

(b) 2.04×10^{-4}

Question 3

Which is larger, 3×10^{-5} or 5×10^{-6}? Explain how you know.

Question 4

Ava wrote 12,000 as 12×10^{3}. Explain why this is not in scientific notation, and write it correctly.

Section B: Standard (Questions 5-10)

Question 5

The average distance from Earth to the Sun is about 150,000,000 km. Write this distance in scientific notation.

Question 6

A grain of dust has a mass of about 0.000,000,75 g. Write this mass in scientific notation.

Question 7

Calculate, giving each answer in scientific notation.

(a) $(3 \times 10^4) \times (2 \times 10^5)$

(b) $(8 \times 10^9) \div (4 \times 10^3)$

(c) $(5 \times 10^3) \times (4 \times 10^{-7})$

Question 8

Write these numbers in order from smallest to largest.

4.2×10^{-3}, quad 3.9×10^2, quad 5×10^{-4}, quad 1.1×10^3, quad 2.5×10^{-3}

Question 9

Light travels at about 3×10^8 metres per second. The Sun is about 1.5×10^{11} metres fro m Earth.

(a) How many seconds does light take to travel from the Sun to Earth?

(b) Write this time in minutes and seconds.

Question 10

A virus is about 1×10^{-7} m long and a bacterium is about 2×10^{-6} m long. How many t imes longer is the bacterium than the virus?

Scientific notation: answers

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Question 1

Answer: (a) 4.5×10^4 (b) 3.2×10^{-3} (c) 7.2×10^6

Question 2

Answer: (a) 610,000 (b) 0.000204

Question 3

Answer: 3×10^{-5} (= 0.00003, which is larger than 5×10^{-6} = 0.000005; the power -5 is greater than -6)

Question 4

Answer: The first number must be at least 1 and less than 10, and 12 is not. Correct form: 1.2×10^4

Question 5

Answer: 1.5×10^8 km

Question 6

Answer: 7.5×10^{-7} g

Question 7

Answer: (a) 6×10^9 (b) 2×10^6 (c) 2×10^{-3} (20×10^{-4})

Question 8

Answer: 5×10^{-4}, 2.5×10^{-3}, 4.2×10^{-3}, 3.9×10^2, 1.1×10^3

Question 9

Answer: (a) 500 seconds (5×10^2) (b) 8 minutes 20 seconds

Question 10

Answer: 20 times ($2 \times 10^{-6} \div 1 \times 10^{-7}$)