

Topic No. 08



#1

Question 1

Simplify:

$$\frac{4^8}{4^{-4}}$$

- A 4^{-32}
- B 4^{-2}
- C 4^4
- D 4^{12}

Question 2

Which expression is not equivalent to $\frac{6^3}{6^6}$?

- A $\frac{1}{6^2}$
- B 6^{-3}
- C $\frac{1}{216}$
- D $\frac{1}{6^3}$

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Question 3

Which number is equivalent to $\frac{3^4}{3^2}$?

- A 2
- B 9
- C 81
- D 729

Question 4

Which expression is equivalent to $4^7 \times 4^{-5}$?

- A 4^{12}
- B 4^2
- C 4^{-2}
- D 4^{-35}

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Question 5

A lab has two bacteria cultures. Culture A contains 8×10^4 bacteria, and culture B contains 4×10^6 bacteria. How do the two cultures compare in size?

- A Culture A contains twice as many bacteria as culture B.
- B Culture A contains $\frac{1}{2}$ as many bacteria as culture B.
- C Culture A contains $\frac{1}{25}$ as many bacteria as culture B.
- D Culture A contains $\frac{1}{50}$ as many bacteria as culture B.

Question 6

The speed of light in a vacuum is 299,792,458 meters per second. Which number, written in scientific notation, is the best approximation of the speed of light?

- A 0.3×10^7 meters per second
- B 0.3×10^8 meters per second
- C 3.0×10^7 meters per second
- D 3.0×10^8 meters per second

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Question 7

Evaluate:

$$(2.4 \times 10^4)(4.5 \times 10^3)$$

- A** 1.08×10^7
- B** 1.08×10^8
- C** 1.08×10^{12}
- D** 1.08×10^{13}

Question 8

Determine the product.

$$800.5 \times (2 \times 10^6)$$

- A** 1.7×10^7
- B** 1.601×10^7
- C** 1.7×10^9
- D** 1.601×10^9

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Question 9

At a given time, Saturn was 9.1×10^8 miles from the Sun and Earth was 9.3×10^7 miles from the Sun. By what distance is one planet closer to the Sun than the other planet?

- A 2×10^1
- B 2×10^{15}
- C 8.17×10^7
- D 8.17×10^8

Question 10

The combined volume of all the tanks at an aquarium is 1.25×10^6 gallons. The aquarium plans to install a new dolphin tank with a volume of 250,000 gallons. What will be the total volume of all of the tanks at the aquarium after the new dolphin tank is installed?

- A 1.5×10^5
- B 3.75×10^5
- C 1.5×10^6
- D 3.75×10^6