8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.

Which expression equals $(4xy^2z^3)^2$?

A) $4x^2y^4z^6$

B) $8x^2y^4z^6$

C) $16x^2y^4z^6$

D) $16x^3y^4z^5$

Which expression is equivalent to $6^5 \cdot 6^{-5} \cdot \left(\frac{4^9}{4^7}\right)^{-3}$?

A) $\frac{1}{4}$

B) $\frac{1}{4^6}$

C) $\frac{6}{4^{20}}$

D) $\frac{6}{4^{34}}$

What is another way to express 4^{-2}?

A) $\frac{1}{16}$

B) $\frac{16}{4}$

C) $\frac{8}{1}$

D) $\frac{32}{2}$

Jordan drove a^3 miles per hour for a^5 hours. How far did Jordan drive?

A) a^2 miles

B) a^8 miles

C) a^{12} miles

D) a^{15} miles

A warehouse stores goods in cube-shaped boxes, each with a volume of x^3 cubic feet.

Part A

If the volume of a single box is 216 cubic centimeters, what is the value of x? Explain your answer.

Part B

In one room, the boxes are arranged together to form a rectangular solid measuring **2x** feet high, **5x** feet long, and **6x** feet wide. If each box has a volume of x^3 cubic feet, how many boxes are arranged together in this room? Explain your answer.

Part C

In a second room, boxes are arranged together in a straight line of length **3x**. What is the total volume of all the boxes in the second room in terms of x? Explain your answer.

8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.

Which term is equivalent to $\frac{2^{-3}}{2^2}$?

A. $\frac{1}{32}$

B. $\frac{1}{8}$

C. $\frac{1}{2}$

D. 2

Which expressions are equivalent to $\frac{3^{-8}}{3^{-4}}$? Select **all** that apply.

A. 3^{-12}

B. 3^{-4}

C. 3^2

D. $\frac{1}{3^2}$

E. $\frac{1}{3^4}$

F. $\frac{1}{3^{12}}$

Which expression is equivalent to -16?

A. -8^2

B. -4^2

C. 4^{-2}

D. -16^0

Which expressions are equivalent to $\frac{1}{36}$? Select **all** that apply.

A. 6^{-2}

B. $6^{-4} \times 6^3$

C. $6^{10} \times 6^{-8}$

D. $6^8 \times 6^{-3}$

E. $6^{-10} \times 6^8$

Simplify $3^5 \cdot 3^3 \cdot 3^2$ using positive exponents.

A. 3^{10}

B. 27^{10}

C. 3^{30}

D. 27^{30}

Simplify the expression: $(5y^4)^2$

A. $25y^6$

B. $25y^8$

C. $5y^6$

D. $5y^8$

Simplify the expression: $\frac{v^2}{v^6}$

A. $\frac{v^2}{v^4}$

B. $\frac{v}{v^{12}}$

C. $\frac{1}{v^4}$

D. v^4

Simplify $\frac{1}{2^{-3}}$.

A. 8

B. 6

C. $\frac{1}{6}$

D. $\frac{1}{8}$

Simplify the expression: $4x^{-2} \cdot 2x^3$

A. $8x$

B. $6x^{-5}$

C. $8x^{-6}$

D. $6x$

Simplify: $\frac{x^{10}}{8x^5}$

A. $\frac{x^5}{8}$

B. $\frac{1}{8x^5}$

C. $8x^5$

D. $\frac{8}{x^5}$