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

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

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

B) $8x^2y^4z^6$ $16x^2y^4z^6$

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) $\frac{1}{4}$ $6^5 \cdot 6^{-5} = 6^{5-5} = 6^0 = 1$

B) $\frac{1}{4^6}$ $\left(\frac{4^9}{4^7}\right)^{-3} = \left(\frac{1}{\frac{4^9}{4^7}}\right)^3 =$

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

D) $\frac{6}{4^{34}}$ $\frac{1}{(4^2)^3} = \frac{1}{4^6}$

What is another way to express 4^2? $= 4 \cdot 4 =$

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

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

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

D) $\frac{32}{2} = 16$ 16

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

A) a^2 miles $a^3 \cdot a^5 = a^{3+5} =$

B) a^8 miles a^8

C) a^{12} miles

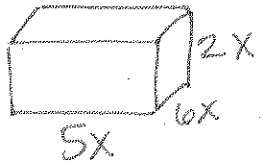
D) a^{15} miles

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.

$V = 216$ so, $x^3 = 216$ $x = \sqrt[3]{216}$ $x = 6$
$V = x^3$

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.

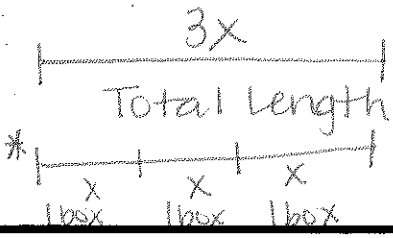


Total Volume: $5x \cdot 6x \cdot 2x = 60x^3$

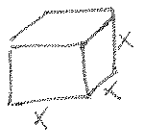
$\frac{60x^3 \text{ (total)}}{x^3 \text{ (vol. of one)}} = 60$ boxes

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.



= 3 boxes



$= x^3$

volume 3 boxes $= 3 \cdot x^3$
(3 boxes, each Vol.)

Total Vol. $= 3x^3$