

Write in expanded form and using exponents (simplify).

Ex. 1: $(5^2)^3$

① Start with exponent on the outside

put blanks

$$\underline{5^2} \cdot \underline{5^2} \cdot \underline{5^2} = (5^6)$$

Ex. 2: $(8^4)^3$

$$\underline{8^4} \cdot \underline{8^4} \cdot \underline{8^4} = 8^{12}$$

Ex. 3: $(k^7)^5$

$$\underline{k^7} \cdot \underline{k^7} \cdot \underline{k^7} \cdot \underline{k^7} \cdot \underline{k^7} = (k^{35})$$

Ex. 4: $[(3^2)^3]^2$

$$(3^2)^6$$

$$\underline{(3^2)^3}$$

$$\underline{(3^2)^3}$$

$$\underline{3^2}$$

$$\underline{3^2}$$

$$\underline{3^2}$$

$$\underline{3^2}$$

$$\underline{3^2}$$

$$\underline{3^2}$$

$$(3^{12})$$

Simplify.

① Put an exponent of 1 on anything w/o an exponent.

Ex. 5: $(3a^2)^5$

$$\underline{3a^2} \cdot \underline{3a^2} \cdot \underline{3a^2} \cdot \underline{3a^2} \cdot \underline{3a^2}$$

$$3^5 a^{10}$$

Ex. 6: $(4p^3)^4 = 4^4 p^{12}$

$$256 p^{12}$$

Ex. 7: $(-5w^2z^8)^3$

$$(-5)^3 w^6 z^{24} = -125 w^6 z^{24}$$

Would the coefficient be positive or negative?

(-)

exp \rightarrow odd \rightarrow neg
exp \rightarrow even \rightarrow positive

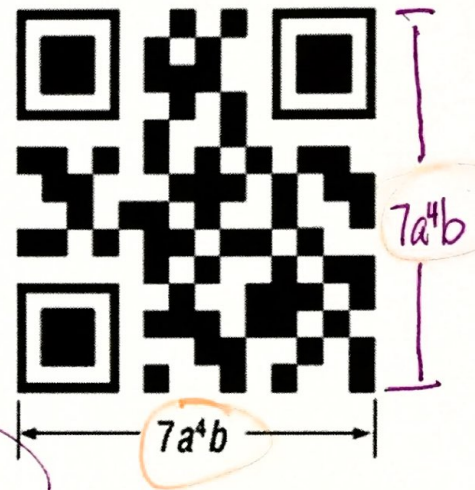
Ex. 8: A magazine offers a special service to its subscribers. If they scan the square logo shown on a smartphone, they can receive special offers from the magazine. Find the area of the logo.

$$A = L \cdot W$$

$$7a^4b \cdot 7a^4b$$

$$(7a^4b)^2$$

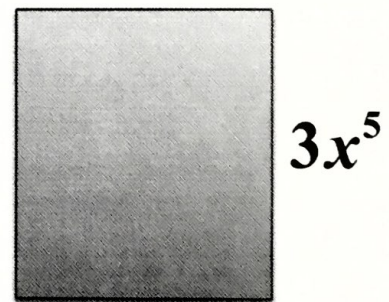
$$7^2 a^8 b^2 = 49a^8b^2$$



Ex. 9: Find the area of the square.

$$(3x^5)^2$$

$$3^2 x^{10} = 9x^{10}$$

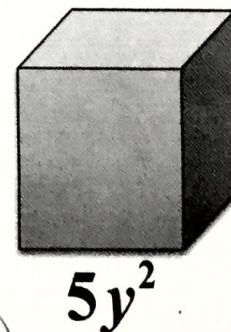


Ex. 10: Find the ~~area~~ ^{Volume} of the cube.

$$V = L \cdot W \cdot h$$

$$(5y^2)^3$$

$$5^3 y^6 = 125y^6$$



Simplify.

Ex. 11: $(4x^5y^6)^2$ $4^2x^{10}y^{12}$ $\neq 16x^{10}y^{12}$

Ex. 12: $\frac{15x^7y^2}{12x^2}$ $\frac{5x^5y^2}{4}$

Ex. 13: $(-8x^3y^8)(6x^5y^2)$

$-48x^8y^{10}$