

Product of Powers Property

Multiply Powers

$$x^3 \cdot x^2$$

$$x \cdot x \cdot x \cdot x \cdot x$$

Bases are the same!

$$x^{1+1+1+1+1}$$

$$x^5$$

#1 $(2^3) \cdot (2^4) = 2^{3+4} = 2^7$

Multiply
2 powers
together

You can add the
exponents together
only if the bases
are the same!

#2 $x^3 \cdot x^9 = x^{3+9} = x^{12}$

#3 $(-4)^2 \cdot (-4)^3 = (-4)^{2+3} = (-4)^5 = -1024$

Evaluate
 $(-4)^5$ ← Power
Form

#4 $(\frac{1}{2})^3 \cdot (\frac{1}{2})^2 = (\frac{1}{2})^{3+2} = (\frac{1}{2})^5$

"one-half
cubed" "one-half
squared"

#5 $(3^2) \cdot (3^6) \cdot (3^1) = 3^{2+6+1} = 3^9 =$

Multiplying
3 powers
together.
Same
Base

Exponent
Form
(Exact Form)

Evaluate

$$\boxed{3} \wedge \boxed{9}$$

$= 19,683$

#6 $\left(\frac{1}{3}\right)^4 \cdot \left(\frac{1}{3}\right)^2 = \left(\frac{1}{3}\right)^{4+2} = \left(\frac{1}{3}\right)^6 = \frac{1}{729}$

↑
most
keep ()'s
around the
fraction

↑
Exponent
Form

↑
Evaluate