Multiplying & Dividing Powers + Power to a Power (3-2)

Example 1: Multiplying Powers with the Same Base

When **multiplying** powers with the ***same base, **add** their exponents.

I Do	We Do	You Do
$6^3 \cdot 6^4$	$11^1 \cdot 11^8$	$12^{12} \cdot 12^5$
$6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$	11^9	12^{17}
6^7		

$5^2 \cdot 4^3$

$25 \cdot 64$

Example 2: Dividing Powers with the Same Base

When **dividing** powers with the ***same base, **subtract** their exponents (numerator – denominator).

I Do	We Do	You Do
$\frac{15^7}{15^2}$	$\frac{x^{19}}{x^{13}}$	$\frac{y^{14}}{y^9}$
15^{7-2}	x^6	y^5
15^5		

Example 2: Dividing Powers with the Same Base (continued)

When **dividing** powers with the ***same base, **subtract** their exponents (numerator – denominator).

I Do	We Do	You Do
$\frac{11^7}{11^{12}}$ 11^{7-12} 11^{-5} $\frac{1}{11^5}$	$\frac{y^{13}}{y^{13}}$ y^{13-13} y^0 1	$\frac{z^{10}}{z^{17}}$ z^{10-17} z^{-7} $\frac{1}{z^7}$

Example 3: Raising a Power to a Power

***When **raising a power to a power**, **multiply** their exponents.

I Do	We Do	You Do
$(3^6)^4$ $3^{6\cdot4}$ 3^{24}	$(19^7)^{12}$ $19^{7\cdot12}$ 19^{84}	$(x^9)^8$ x^{72}

IXL Lessons: 8th Grade → F.8, F.9, F.10, F.11