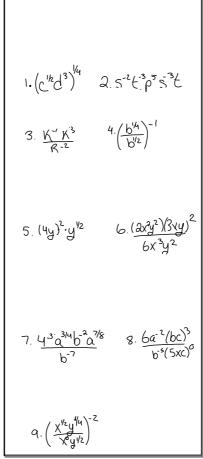


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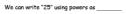
Unit 7 C EXPONENTS & POWER PROPERTIES! irrections: Each problem in this table uses a property of exponents. You will encounter these properties often! Simplify as many of the examples as you can, and ory to write a	
general rule and reason for each beg	
Example: $(x^2)(x^4)$	Example: $(3xy^2)^3$
☐ "If multiplying same bases,	☐ "When the power is applied to a monomia
Generalization: x ^m * x ⁿ =	Generalization: (x ^m) ⁿ =
"Fraction to a Power" Property	Division Property
Example: $\left(\frac{x}{7}\right)^2$	Example: $\frac{r^7}{r^4}$
"When the power is applied to a fraction,	"If dividing same bases,
Generalization: $\left(\frac{x}{y}\right)^m = \underline{\hspace{1cm}}$	Generalization: $\frac{x^m}{x^n} = \underline{\hspace{1cm}}$
Zero Power Property & Negative Power	Properties
3 ⁴ = 3 ³ = 3 ² = 3 ¹ =	*Pause! Do you notice any patterns?!
Based on the pattern you noticed, try to complete	the following:
3 ⁰ = 3 ⁻¹ = 3 ⁻² =	
Zero Power Property	Negative Power Property
"When the power is zero,	"When the power is negative,
Generalization: $\mathbf{x}^0 = \underline{\hspace{1cm}}$	Generalization: x ^{-m} =



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RADICAL POWER RELATIONSHIPS!

...but we want to write this radical using only powers





Now (____)^{\rm what power?!} Would give us the same result as $\sqrt{25}$?

 $$\Box$$ *Let's try this again with $\sqrt{49}$ *Let's try again with $\sqrt[3]{8}$

GENERAL RULE: $\sqrt[n]{x^m}$ =	EXAMPLE A:	EXAMPLE B:
	$\sqrt{36x^8y^{40}}$	√16 ⁵
	EXAMPLE C:	EXAMPLE D:
	$\sqrt[3]{8y^2}$	$\sqrt[3]{(m+n)^2}$

PRACTICE! REWRITE EACH IN EXPONENTIAL FORM. (NO RADICALS, BUT FRACTIONAL EXPONENTS ARE OKAY!)

1.
$$\sqrt[3]{64b^3c^{90}}$$
 2. $\sqrt[4]{16x^3}$ 3. $\sqrt[3]{27^4}$

4.
$$\sqrt[4]{(x-y)^4}$$
 5. $\sqrt[4]{(p+q)}$

GENERAL RULE: $x^{m/n} =$	EXAMPLE E:	EXAMPLE F:
	125 3	$(8p^{12}q^7)^{\frac{2}{3}}$
	EXAMPLE G:	EXAMPLE H:
	$2^{-\frac{2}{5}}$	$\left((b^3c^5)^{\frac{3}{3}} \right)^{-\frac{1}{2}}$
		I
	SION USING RADICALS AS MUCH AS POSSIBLE	. (NO FRACTIONAL EXPONENTS IN FINAL ANSWERS)
7. $8^{-\frac{2}{3}}$	8. $4^{\frac{1}{2}} * 64^{\frac{2}{3}}$	9. $x^{\frac{2}{7}} * v^{-\frac{1}{2}} * (z^{13})^{\frac{1}{3}}$

10.
$$100^{\frac{3}{2}}$$
 11. $(-64y^{12})^{\frac{5}{3}}$

12.
$$\frac{(8z)}{(8z)^{\frac{3}{2}}}$$

