



Math worksheet on 'Exponents - Power Law - Variable Exponent Base with Known Power to Exponent Base with Unknown Power (Level 1)'. Part of a broader unit on 'Exponents - Negative, Fractional, and Power Law'

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1 Solve for the missing exponent (?) in reduced form

$$(3^n)^9 = (3^3)^?$$

a	b	c	d	e	f
$? = 4n$	$? = \frac{12n}{3}$	$? = 12n$	$? = \frac{9n}{4}$	$? = 3n$	$? = 9n$

2 Solve for the missing exponent (?) in reduced form

$$(2^n)^{12} = (2^4)^?$$

a	b	c	d	e	f
$? = \frac{15n}{4}$	$? = \frac{5}{15n}$	$? = 5n$	$? = 3n$	$? = \frac{12n}{5}$	$? = 4n$

3 Solve for the missing exponent (?) in reduced form

$$(3^n)^6 = (3^2)^?$$

a	b	c	d	e	f
$? = 8n$	$? = \frac{3}{9n}$	$? = \frac{6n}{3}$	$? = \frac{3n}{2}$	$? = 6n$	$? = 3n$

4 Solve for the missing exponent (?) in reduced form

$$(2^n)^6 = (2^2)^?$$

a	b	c	d	e	f
$? = \frac{5n}{15}$	$? = 6n$	$? = 5n$	$? = \frac{6n}{5}$	$? = 3n$	$? = \frac{2}{2n}$

5 Solve for the missing exponent (?) in reduced form

$$(4^n)^6 = (4^2)^?$$

a	b	c	d	e	f
$? = \frac{4n}{2}$	$? = \frac{3}{9n}$	$? = 3n$	$? = 6n$	$? = \frac{3n}{9}$	$? = \frac{4}{2n}$

6 Solve for the missing exponent (?) in reduced form

$$(2^n)^9 = (2^3)^?$$

a	b	c	d	e	f
$? = 3n$	$? = \frac{2n}{3}$	$? = \frac{5}{15n}$	$? = \frac{9}{5n}$	$? = 5n$	$? = 9n$

7 Solve for the missing exponent (?) in reduced form

$$(3^n)^{12} = (3^4)^?$$

a	b	c	d	e	f
$? = 4n$	$? = \frac{2}{6n}$	$? = 3n$	$? = \frac{3n}{4}$	$? = \frac{12n}{2}$	$? = 5n$