Math worksheet on *'Exponents - Power Law - Exponent Base with Variable Power to Unknown Exponent Base with Known 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

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

a	b	c	d	e	f
$? = \frac{n}{3}$	$? = 2n$	$? = \frac{4}{12n}$	$? = 8n$	$? = \frac{12n}{2}$	$? = 4n$

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

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

a	b	c	d	e	f
$? = \frac{3}{9n}$	$? = \frac{n}{3}$	$? = \frac{2}{4n}$	$? = 3n$	$? = \frac{12}{3n}$	$? = 4n$

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

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

a	b	c	d	e	f
$? = \frac{3n}{9}$	$? = \frac{3}{4n}$	$? = 12n$	$? = 6n$	$? = \frac{n}{3}$	$? = \frac{3n}{4}$

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

$$(4^3)^n = (4^?)^6$$

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

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

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

a	b	c	d	e	f
$? = 10n$	$? = \frac{2n}{5}$	$? = 5n$	$? = \frac{n}{2}$	$? = \frac{10}{3n}$	$? = \frac{6n}{5}$

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

$$(2^4)^n = (2^?)^8$$

a	b	c	d	e	f
$? = 9n$	$? = 6n$	$? = \frac{n}{2}$	$? = \frac{4n}{8}$	$? = \frac{6n}{4}$	$? = \frac{2}{3n}$

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

$$(4^3)^n = (4^?)^9$$

a	b	c	d	e	f
$? = \frac{4n}{2}$	$? = \frac{3}{9n}$	$? = 2n$	$? = 8n$	$? = 7n$	$? = \frac{n}{3}$