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

$$(2^n)^{12} = 16^?$$

a	b	c	d	e	f
$?=12n$	$?=4n$	$?=\frac{15n}{4}$	$?=\frac{12}{5n}$	$?=3n$	$?=7n$

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

$$(3^n)^{12} = 81^?$$

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

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

$$(2^n)^9 = 8^?$$

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

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

$$(3^n)^6 = 27^?$$

a	b	c	d	e	f
$?=\frac{4}{8n}$	$?=4n$	$?=7n$	$?=2n$	$?=\frac{6}{4n}$	$?=\frac{3n}{3}$

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

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

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

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

$$(3^n)^6 = 9^?$$

a	b	c	d	e	f
$?=7n$	$?=6n$	$?=\frac{4n}{12}$	$?=\frac{6n}{4}$	$?=3n$	$?=\frac{12n}{2}$

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

$$(2^n)^8 = 16^?$$

a	b	c	d	e	f
$?=2n$	$?=\frac{5}{10n}$	$?=\frac{10n}{4}$	$?=\frac{5n}{10}$	$?=7n$	$?=\frac{8n}{5}$