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

$$(2^5)^n = 8^?$$

a	b	c	d	e	f
$?=9n$	$?=\frac{6}{5n}$	$?=\frac{5n}{10}$	$?=\frac{5}{10n}$	$?=\frac{5n}{3}$	$?=\frac{6n}{5}$

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

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

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

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

$$(3^2)^n = 81^?$$

a	b	c	d	e	f
$?=16n$	$?=\frac{2n}{6}$	$?=\frac{3}{4n}$	$?=4n$	$?=\frac{12n}{2}$	$?=\frac{n}{2}$

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

$$(4^3)^n = 16^?$$

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

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

$$(2^2)^n = 32^?$$

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

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

$$(2^5)^n = 4^?$$

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

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

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

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