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 - Multiplication and Division - Advanced'*

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

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

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

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

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

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

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

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

a	b	c	d	e	f
$?=2n$	$?=4n$	$?=6n$	$?=\frac{5n}{10}$	$?=7n$	$?=\frac{2n}{2}$

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

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

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

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

$$(3^n)^8 = 81^?$$

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

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

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

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

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

$$(4^n)^6 = 16^?$$

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