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

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

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

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

$$8^n = (2^?)^6$$

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

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

$$27^n = (3^?)^9$$

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

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

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

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

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

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

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

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

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

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

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

$$64^n = (4^?)^6$$

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