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

$$4^n = 32^?$$

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

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

$$16^n = 8^?$$

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

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

$$9^n = 27^?$$

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

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

$$9^n = 81^?$$

a	b	c	d	e	f
$?=2n$	$?=5n$	$?=12n$	$?=\frac{n}{2}$	$?=\frac{3}{4n}$	$?=\frac{3n}{4}$

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

$$32^n = 16^?$$

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

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

$$4^n = 8^?$$

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

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

$$27^n = 81^?$$

a	b	c	d	e	f
$?=\frac{3}{9n}$	$?=\frac{12n}{3}$	$?=\frac{3n}{4}$	$?=\frac{12}{3n}$	$?=\frac{3n}{9}$	$?=16n$