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

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

a	b	c	d	e	f
$? = \frac{2n}{2}$	$? = 5n$	$? = 8n$	$? = \frac{15n}{2}$	$? = \frac{6}{5n}$	$? = \frac{n}{2}$

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

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

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

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

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

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

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

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

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

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

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

a	b	c	d	e	f
$? = \frac{2}{4n}$	$? = 2n$	$? = \frac{n}{4}$	$? = \frac{2n}{4}$	$? = 12n$	$? = \frac{8}{2n}$

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

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

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

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

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

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