



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

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

a	b	c	d	e	f
$? = 4n$	$? = 3n$	$? = 6n$	$? = \frac{3}{4n}$	$? = \frac{12n}{1}$	$? = \frac{4}{12n}$

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

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

a	b	c	d	e	f
$? = n$	$? = \frac{3n}{2}$	$? = \frac{2}{6n}$	$? = 2n$	$? = 4n$	$? = \frac{5n}{1}$

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

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

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

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

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

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

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

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

a	b	c	d	e	f
$? = \frac{3n}{9}$	$? = 3n$	$? = \frac{3n}{1}$	$? = \frac{3}{3n}$	$? = \frac{9n}{1}$	$? = 4n$

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

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

a	b	c	d	e	f
$? = 7n$	$? = \frac{2n}{4}$	$? = \frac{4n}{8}$	$? = \frac{3n}{1}$	$? = 4n$	$? = \frac{8n}{1}$

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

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

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