



Math worksheet on 'Exponents - Power Law - Exponent 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

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

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

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

$$(2^4)^n = (2^?)^{12}$$

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

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

$$(3^4)^n = (3^?)^8$$

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

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

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

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

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

$$(2^3)^n = (2^?)^9$$

a	b	c	d	e	f
? = $\frac{n}{3}$? = $\frac{2}{2n}$? = 8n	? = 5n	? = $\frac{6}{3n}$? = 3n

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

$$(2^3)^n = (2^?)^6$$

a	b	c	d	e	f
? = 5n	? = $\frac{2n}{5}$? = $\frac{6n}{5}$? = $\frac{n}{2}$? = $\frac{10}{3n}$? = 10n

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

$$(2^4)^n = (2^?)^8$$

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