



Exponents - Power Law - Exponent Base with Variable Power to Unknown

Exponent Base with Known Power

1 Solve for the missing exponent (x) in reduced form

$$(3^2)^n = (3^x)^4$$

A	$x = \frac{2}{4n}$	B	$x = 4n$
C	$x = \frac{n}{2}$	D	$x = 5n$
E	$x = 12n$	F	$x = 8n$

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

$$(3^4)^n = (3^x)^{12}$$

A	B	C	D	E	F
$x = \frac{4n}{12}$	$x = 4n$	$x = 7n$	$x = \frac{4}{12n}$	$x = \frac{n}{3}$	$x = 6n$

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

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

A	$x = 12n$	B	$x = \frac{4}{12n}$
C	$x = \frac{4n}{12}$	D	$x = \frac{2}{3n}$
E	$x = \frac{n}{3}$	F	$x = \frac{9}{4n}$

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

$$(2^5)^n = (2^x)^{10}$$

A	B	C	D	E	F
$x = 4n$	$x = \frac{10n}{4}$	$x = \frac{8}{5n}$	$x = 7n$	$x = 5n$	$x = \frac{n}{2}$

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

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

A	$x = 3n$	B	$x = \frac{2n}{6}$
C	$x = \frac{n}{3}$	D	$x = \frac{4}{3n}$
E	$x = \frac{9}{2n}$	F	$x = 12n$

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

$$(2^5)^n = (2^x)^{15}$$

A	$x = \frac{15n}{4}$	B	$x = 4n$
C	$x = 16n$	D	$x = \frac{12}{5n}$
E	$x = \frac{n}{3}$	F	$x = \frac{2n}{4}$

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

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

A	B	C	D	E	F
$x = \frac{4n}{3}$	$x = \frac{2}{4n}$	$x = \frac{n}{2}$	$x = 6n$	$x = \frac{2n}{4}$	$x = \frac{6n}{2}$

8 Solve for the missing exponent (x) in reduced form

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

A	$x = 5n$	B	$x = 15n$
C	$x = \frac{15}{2n}$	D	$x = \frac{n}{3}$
E	$x = \frac{2}{6n}$	F	$x = \frac{15n}{2}$