



Exponents - Power Law - Practice

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

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

A

$$x = \frac{4n}{4}$$

B

$$x = \frac{4n}{8}$$

C

$$x = 4n$$

D

$$x = 6n$$

E

$$x = \frac{n}{2}$$

F

$$x = 2n$$

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

$$5^n = (5^x)^3$$

A

$$x = 6n$$

B

$$x = \frac{n}{3}$$

C

$$x = \frac{6n}{1}$$

D

$$x = \frac{5}{2n}$$

E

$$x = \frac{3n}{2}$$

F

$$x = 8n$$

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

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

A

$$x = \frac{8n}{1}$$

B

$$x = n$$

C

$$x = \frac{4}{8n}$$

D

$$x = 4n$$

E

$$x = 3n$$

F

$$x = 6n$$

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

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

A

$$x = \frac{4}{n}$$

B

$$x = 2n$$

C

$$x = \frac{4n}{1}$$

D

$$x = \frac{2n}{3}$$

E

$$x = \frac{3n}{6}$$

F

$$x = n$$



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

$$2^n = 16^x$$

A $x = 12n$	B $x = n$
C $x = \frac{n}{4}$	D $x = \frac{2n}{4}$
E $x = \frac{8}{n}$	F $x = \frac{1}{2n}$

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

$$8^n = 2^x$$

A $x = \frac{2n}{1}$	B $x = \frac{6n}{1}$
C $x = \frac{3}{6n}$	D $x = 3n$
E $x = \frac{3n}{6}$	F $x = 5n$

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

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

A $x = \frac{12n}{2}$	B $x = 3n$
C $x = \frac{3}{2n}$	D $x = \frac{4}{12n}$
E $x = 2n$	F $x = 8n$

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

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

A $x = 8n$	B $x = 4n$
C $x = \frac{2}{2n}$	D $x = \frac{6}{4n}$
E $x = \frac{6n}{4}$	F $x = \frac{n}{3}$



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- 9** Solve for the missing exponent (x) in reduced form

$$(2^5)^n = (2^3)^x$$

A

$$x = \frac{10n}{3}$$

B

$$x = 7n$$

C

$$x = \frac{2n}{3}$$

D

$$x = 5n$$

E

$$x = \frac{6n}{5}$$

F

$$x = \frac{5n}{3}$$

- 10** Solve for the missing exponent (x) in reduced form

$$32^n = (2^3)^x$$

A

$$x = 9n$$

B

$$x = \frac{5n}{15}$$

C

$$x = \frac{9n}{5}$$

D

$$x = \frac{2n}{3}$$

E

$$x = \frac{5n}{3}$$

F

$$x = 7n$$

- 11** Solve for the missing exponent (x) in reduced form

$$(3^4)^n = 27^x$$

A

$$x = 3n$$

B

$$x = \frac{6n}{4}$$

C

$$x = \frac{3}{3n}$$

D

$$x = \frac{4}{8n}$$

E

$$x = \frac{4n}{3}$$

F

$$x = \frac{6}{4n}$$

- 12** Solve for the missing exponent (x) in reduced form

$$(2^n)^{10} = 32^x$$

A

$$x = \frac{2n}{4}$$

B

$$x = 10n$$

C

$$x = 2n$$

D

$$x = \frac{10n}{2}$$

E

$$x = 4n$$

F

$$x = \frac{2}{5n}$$



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

$$16^n = 64^x$$

A $x = \frac{6n}{3}$

B $x = 9n$

C $x = \frac{2}{6n}$

D $x = \frac{2n}{3}$

E $x = \frac{9n}{2}$

F $x = \frac{4}{3n}$

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

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

A $x = 4n$

B $x = 2n$

C $x = \frac{n}{3}$

D $x = \frac{6n}{4}$

E $x = \frac{2n}{6}$

F $x = \frac{12}{2n}$

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

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

A $x = 2n$

B $x = 3n$

C $x = \frac{2n}{3}$

D $x = 6n$

E $x = \frac{4n}{2}$

F $x = 7n$

16 Solve for the missing exponent (?)

$$10^9 = (10^3)^?$$

A $? = 9$

B $? = 3$

C $? = 11$

D $? = 5$

E $? = 10$

F $? = 1$

17 Solve for the missing exponent (?)

$$10^4 = (10^?)^2$$

A $? = 5$

B $? = 9$

C $? = 2$

D $? = 7$

E $? = 6$

F $? = 3$

**Exponents - Power Law - Practice****18** Solve for the missing exponent (?)

$$(10^2)^2 = 10^?$$

A	$? = 4$	B	$? = 2$
C	$? = 6$	D	$? = 11$
E	$? = 1$	F	$? = 12$

19 Solve for the missing exponent (?)

$$(10^2)^3 = 10^?$$

A	$? = 6$	B	$? = 8$
C	$? = 11$	D	$? = 9$
E	$? = 10$	F	$? = 2$

20 Solve for the missing exponent (?)

$$10^6 = 100^?$$

A	$? = 6$	B	$? = 4$
C	$? = 11$	D	$? = 3$
E	$? = 5$	F	$? = 10$

21 Solve for the missing exponent (?)

$$10000^2 = 10^?$$

A	$? = 1$	B	$? = 8$
C	$? = 10$	D	$? = 12$
E	$? = 6$	F	$? = 9$

22 Solve for 'x'

$$3^x + 3^{x+1} = 108$$

A	$x=7$	B	$x=5$	C	$x=4$
D	$x=2$	E	$x=10$	F	$x=3$

23 Solve for the missing exponent (?)

$$(10^3)^6 = (10^2)^?$$

A	$? = 9$	B	$? = 7$
C	$? = 11$	D	$? = 16$
E	$? = 14$	F	$? = 5$

24 Solve for 'x'

$$6^x + 6^{x+1} = 252$$

A	$x=2$	B	$x=9$	C	$x=4$
D	$x=10$	E	$x=6$	F	$x=7$

25 Solve for the missing exponent (?)

$$(10^4)^6 = (10^?)^{12}$$

A	$? = 3$	B	$? = 2$
C	$? = 4$	D	$? = 8$
E	$? = 6$	F	$? = 5$

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26 Solve for the missing exponent (?)
 $(10^3)^{12} = (10^4)^?$

A	$? = 1$	B	$? = 16$
C	$? = 9$	D	$? = 4$
E	$? = 8$	F	$? = 2$

27 Solve for 'x'

$$5^8 + 5^8 + 5^8 + 5^8 + 5^8 = 5^x$$

A	$x = 13$	B	$x = 11$	C	$x = 5$
D	$x = 4$	E	$x = 10$	F	$x = 9$

28 Solve for 'x'

$$3^2 + 3^2 + 3^2 = 3^x$$

A	$x = 5$	B	$x = 2$	C	$x = 12$
D	$x = 3$	E	$x = 1$	F	$x = 10$

29 Solve for the missing exponent (?)

$$10000^4 = (10^2)^?$$

A	$? = 8$	B	$? = 5$
C	$? = 14$	D	$? = 13$
E	$? = 11$	F	$? = 15$

30 Solve for the missing exponent (?)
 $(10^3)^{12} = 10000^?$

A	$? = 8$	B	$? = 7$
C	$? = 4$	D	$? = 17$
E	$? = 9$	F	$? = 10$

31 Solve for the missing exponent (?)

$$(10^2)^9 = 1000^?$$

A	$? = 3$	B	$? = 13$
C	$? = 7$	D	$? = 15$
E	$? = 1$	F	$? = 6$

32 Solve for the missing exponent (?)
 $100^9 = 1000^?$

A	$? = 6$	B	$? = 1$
C	$? = 5$	D	$? = 3$
E	$? = 11$	F	$? = 7$

33 Solve for the missing exponent (?)

$$1000^4 = (10^?)^6$$

A	$? = 2$	B	$? = 3$
C	$? = 4$	D	$? = 9$
E	$? = 1$	F	$? = 8$

**Exponents - Power Law - Practice****34** Solve for the missing exponent (?)

$$(10^3)^6 = (10^?)^9$$

A	$? = 4$	B	$? = 10$
C	$? = 6$	D	$? = 8$
E	$? = 7$	F	$? = 2$

35 Solve for x

$$49^x = 7^{28}$$

A	$x = 11$	B	$x = 14$
C	$x = 8$	D	$x = 22$
E	$x = 17$	F	$x = 20$

36 Solve for x

$$5^x = 25^{11}$$

A	$x = 24$	B	$x = 4$
C	$x = 32$	D	$x = 14$
E	$x = 22$	F	$x = 2$

37 Solve for x

$$16^{\sqrt{x}} = 2^8$$

A	$x = 16$	B	$x = 100$
C	$x = 4$	D	$x = 36$
E	$x = 9$	F	$x = 64$

38 Solve for x

$$121^{(x^2)} = 11^{200}$$

A	$x = 1$	B	$x = 6$
C	$x = 5$	D	$x = 18$
E	$x = 10$	F	$x = 17$

39 Solve for x

$$3^{\sqrt{x}} = 9^5$$

A	$x = 196$	B	$x = 25$
C	$x = 64$	D	$x = 144$
E	$x = 100$	F	$x = 130$

40 Solve for x

$$2^{(x^2)} = 16^{100}$$

A	$x = 18$	B	$x = 6$
C	$x = 30$	D	$x = 20$
E	$x = 8$	F	$x = 26$

41 Which is larger?

$$11^{200} \text{ or } 5^{300}$$

A	5^{300}	B	11^{200}
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