



Warm Up  
Grade 8

Nov. 1, 2016

Base <sup>exponent</sup>

Answer on calculator  
↓

1) Complete the chart

Repeated Multiplication

Power	Base	Exponent	Expanded Form	Exponential Form	Standard form
4 <sup>7</sup>	4	7	4x4x4x4x4x4x4	4 <sup>7</sup>	16384
2 <sup>6</sup>	2	6	2x2x2x2x2x2	2 <sup>6</sup>	64
11 <sup>3</sup>	11	3	11x11x11	11 <sup>3</sup>	1331
3 <sup>4</sup>	3	4	3x3x3x3	3 <sup>4</sup>	81
7 <sup>5</sup>	7	5	7x7x7x7x7	7 <sup>5</sup>	16807
12 <sup>3</sup>	12	3	12x12x12	12 <sup>3</sup>	1728

Quiz tomorrow



Solutions *Warm Up*



## 1) Complete the chart

Power	Base	Exponent	Expanded Form	Exponential Form	Standard form
$4^7$	4	7	$4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$	$4^7$	16384
$2^6$	2	6	$2 \times 2 \times 2 \times 2 \times 2 \times 2$	$2^6$	64
$11^3$	11	3	$11 \times 11 \times 11$	$11^3$	1331
$3^4$	3	4	$3 \times 3 \times 3 \times 3$	$3^4$	81
$7^5$	7	5	$7 \times 7 \times 7 \times 7 \times 7$	$7^5$	16807
$12^3$	12	3	$12 \times 12 \times 12$	$12^3$	1728

## Solution to Homework

	Power	Base	Exponent	Exponential Form	Expanded Form	Standard Form
a)	$7^3$	7	3	$7^3$	$7 \times 7 \times 7$	343
b)	$9^4$	9	4	$9^4$	$9 \times 9 \times 9 \times 9$	6561
c)	$6^2$	6	2	$6^2$	$6 \times 6$	36
d)	$4^5$	4	5	$4^5$	$4 \times 4 \times 4 \times 4 \times 4$	1024
e)	$3^5$	3	5		$3 \times 3 \times 3 \times 3 \times 3$	243
f)	$10^4$	10	4	$10^4$	$10 \times 10 \times 10 \times 10$	10000
g)	$5^4$	5	4	$5^4$	$5 \times 5 \times 5 \times 5$	625
h)	$4^5$	4	5	$4^5$	$4 \times 4 \times 4 \times 4 \times 4$	1024
i)	$8^3$	8	3	$8^3$	$8 \times 8 \times 8$	512
j)	$3^9$	3	9	$3^9$	$3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$	19683
k)	$8^2$	8	2	$8^2$	$8 \times 8$	64
l)	$5^6$	5	6	$5^6$	$5 \times 5 \times 5 \times 5 \times 5 \times 5$	15625
m)	$3^3$	3	3	$3^3$	$3 \times 3 \times 3$	27
n)	$11^2$	11	2	$11^2$	$11 \times 11$	121
o)	$6^4$	6	4	$6^4$	$6 \times 6 \times 6 \times 6$	1296
p)	$2^5$	2	5	$2^5$	$2 \times 2 \times 2 \times 2 \times 2$	32

Ex. 1)

Find the missing exponent. (Show Work)

$$4^{\boxed{5}} = 1024$$

$$4^1 = 4$$

$$4^2 = 16$$

$$4^3 = 64$$

$$4^4 = 256$$

$$4^5 = 1024$$

$$7^{\boxed{3}} = 343$$

$$7^1 = 7$$

$$7^2 = 49$$

$$7^3 = 343$$

Ex. 2)

Find the missing base.

$$\underline{6}^2 = 36$$

$$1^2 = 1$$

$$2^2 = 4$$

$$3^2 = 9$$

$$4^2 = 16$$

$$5^2 = 25$$

$$\boxed{6^2 = 36}$$

$$\underline{12}^3 = 1728$$

$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

$$6^3 = 216$$

$$7^3 = 343$$

$$8^3 = 512$$

$$9^3 = 729$$

$$10^3 = 1000$$

$$11^3 = 1331$$

$$12^3 = 1728$$

Ex. 3)

Place a <, > or = in the box. (Show your calculation)

$$3^5 \quad \boxed{>} \quad 6^3$$

$$\downarrow \qquad \qquad \downarrow$$

$$243 \qquad \qquad 216$$

Bigge



Quiz Tomorrow

What do we notice?

$$3^1 =$$

$$10^1 =$$

$$12^1 =$$

$$17^1 =$$

$$27^1 =$$

$$99^1 =$$

$$10^0 =$$

$$2^0 =$$

$$81^0 =$$

$$21^0 =$$

$$13^0 =$$

$$5^0 =$$

## Exponents

Whenever you have an exponent of 2, it is said to be **squared**.  $3^2$  might be read as 3 squared.

Whenever you have an exponent of 3, it is said to be **cubed**.  $5^3$  might be read as 5 cubed.

If the base is raised to the **exponent 1**, then the answer will always be the base itself.

examples:  $15^1 = 15$

$24^1 = 24$

$6\ 893^1 = 6\ 893$

If the base is raised to the **exponent 0**, then the answer will always be 1.

examples:  $26^0 = 1$      $147^0 = 1$      $945^0 = 1$

Discuss using a calculator

$x^y$  or  $y^x$  or  $y \wedge$

## Attachments

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WS 2.3 Powers.doc