

October 3

Section 2.2

Powers of Ten and Zero Exponents

Use 3 as your base

Exponent	Power	Repeated Multiplication	Standard Form
4	3^4	$3 \times 3 \times 3 \times 3$	81 $\div 3$
3	3^3	$3 \times 3 \times 3$	27 $\div 3$
2	3^2	3×3	9 $\div 3$
1	3^1	3	3 $\div 3$

3^0

1 $\div 3$



Zero Exponent Law

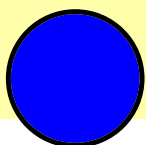
(positive/negative)

A power with an integer base, other than 0, and an exponent of 0 is

Ex. equal to 1

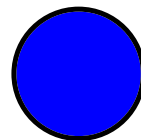
a) $52^0 = 1$ b) $628^0 = 1$ c) $10^0 = 1$

d) $(-4)^0$ e) $-(-2)^0$ f) -4^0



-1

-1



-1

Try this

Evaluate each expression

a) 5^0
|

b) $-(5)^0$
-|

c) $(-5)^0$
|

d) -5^0
-|

Number in Words	Standard Form	Power
One billion	1 000 000 000	10^9
One hundred million	100 000 000	10^8
Ten million	10 000 000	10^7
One million	1 000 000	10^6
One hundred thousand	100 000	10^5
Ten thousand	10 000	10^4
One thousand	1 000	10^3
One hundred	100	10^2
Ten	10	10^1
One	1	10^0

← When the base is 10 the exponent tells the number of zeros when written in standard form

three thousand two hundred sixty two

**standard
form**

3262

1000
 10^3

**Expanded
form**

$3000 + 200 + 60 + 2$

**Power of
10**

$3 \times 10^3 + 2 \times 10^2 + 6 \times 10^1 + 2 \times 10^0$

Write 96 713 as a power of 10

Expanded form

$$90\,000 + 6\,000 + 700 + 10 + 3$$

Power of

10

$$9 \times 10^4 + 6 \times 10^3 + 7 \times 10^2 + 1 \times 10^1 + 3 \times 10^0$$

Write using powers of 10

a) 3 528

$$3000 + 500 + 20 + 8$$

$$3 \times 10^3 + 5 \times 10^2 + 2 \times 10^1 + 8 \times 10^0$$

b) 600

$$6 \times 10^2$$

