Warm Up
Grade 9

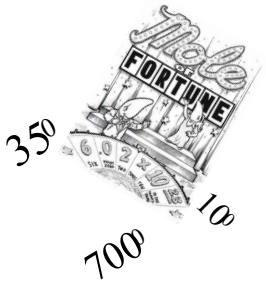
Write the following as a repeated multiple and evaluate

1) $-(-7)^5$ 2) (-3^5) 3) -2^6 4) $-(-4)^2(6)^3$

Write as a power then evaluate

1) $(-4)(-4)(4)(4)(-5)(-5)$ 2) $-(3)(3)(-7)(-7)(-7)$

Section 2.2



Powers of Ten and the Zero Exponent

Avogadro's number = 6.0221415×10^{23}

The speed of light = $2.99\ 792\ 458 \times 10^{8}$ m / s

Temperature of the Sun's Core = 1.5×10^{6}°C

since 15000000 kelvin = 14999726.85 degree Celsius

Light years= 4.96×10^{12} km

Distance related to Powers of 10
http://vimeo.com/819138

Any number (except 0) with an exponent 0 will equal 1

$2^0 = 1$

$13^0 = 1$

$199^0 = 1$

$(-6)^0 = 1$

$(\infty)^0 = 1$

Why???

Zero Exponent LAW

A power with a base not equal to zero, and an exponent of 0 is equal to 1

Any number raised to the power of ZERO is equal to 1

$$x^0 = 1$$

Powers of 10

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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

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The exponent on a power of 10 tells you how many zeros follow the 1.

Writing Numbers Using Powers of Ten

$10\,000 = 10^4$

Write 96 713 as a power of 10

10^4	10^3	10^2	10^1	10^0
Ten Thousands	Thousands	Hundreds	Tens	Ones
9	6	7	1	3

$(9 \cdot 10^4) + (6 \cdot 10^3) + (7 \cdot 10^2) + (10^1) + (3 \cdot 10^0)$

$(90000) + (6000) + (700) + (10) + (3)$

96 713

Write as power of ten.

7 605 404

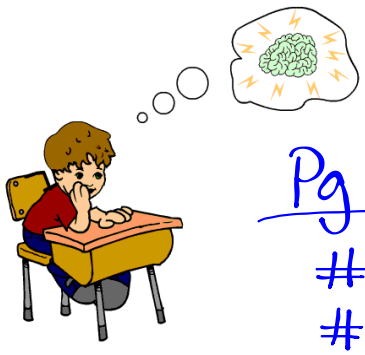
$10^0 = 1$
$10^1 = 10$
$10^2 = 100$
$10^3 = 1000$

$(7 \cdot 10^6) + (6 \cdot 10^5) + (5 \cdot 10^3) + (4 \cdot 10^2) + (4 \cdot 10^0)$

7000000 + 600000 + 5000 + 400 + 4

7605404

PRACTICE TIME



Pg 56

#20
#21 a-iii
#23

Pg 61

#4 ac #6
#5 ac #9 ace