

Name: <u>Key</u>	Class:
Topic:	Date:

Main Ideas/Questions	Notes				
WHAT IS IT?	A shortened form to write a big or small number in powers of 10.				
EXAMPLE 1:	The minimum distance from the Earth to Mars is approximately 284,000 miles. Write this number in scientific notation: 2.84×10^5				
EXAMPLE 2:	The 2004 Indonesian earthquake slowed the rotation of the Earth, making the length of a day 0.00000268 seconds shorter. Write this number in scientific notation: 2.68×10^{-6}				
PRACTICE!	<p>Convert the following from <u>standard form</u> to <u>scientific notation</u>:</p> <p>1. $75,000,000 = 7.5 \times 10^7$ 4. $0.00852 = 8.52 \times 10^{-3}$ 2. $208 = 2.08 \times 10^2$ 5. $0.04 = 4 \times 10^{-2}$ 3. $907,000 = 9.07 \times 10^5$ 6. $0.0000061 = 6.1 \times 10^{-6}$</p> <p>Convert the following from <u>scientific notation</u> to <u>standard form</u>:</p> <p>7. $2.54 \times 10^2 = 254$ 10. $6.7 \times 10^{-2} = 0.067$ 8. $9.1 \times 10^5 = 910,000$ 11. $5.88 \times 10^{-4} = 0.000588$ 9. $1.14 \times 10^3 = 1,140$ 12. $3.8 \times 10^{-1} = 0.38$</p>				
ADDING & SUBTRACTING	<p>Step 1: Make sure exponents are the same! Use <u>LARS</u> (<u>left add, right subtract</u>) to shift the decimal and change the exponent if needed.</p> <p>Step 2: Add or Subtract the numbers, <u>keep the common exponent</u>.</p> <table border="1"> <tr> <td>1. $(3.4 \times 10^2) + (5.2 \times 10^2)$ 8.6×10^2</td> <td>2. $(9.5 \times 10^7) + (1.1 \times 10^6)$ $9.5 \times 10^7 + 0.11 \times 10^7$ 9.61×10^7</td> </tr> <tr> <td>3. $(7.24 \times 10^{-4}) + (3.18 \times 10^{-5})$ $7.24 \times 10^{-4} + 0.318 \times 10^{-4}$ 7.558×10^{-4}</td> <td>4. $(6.8 \times 10^{-3}) + (2.7 \times 10^{-2})$ $0.68 \times 10^{-2} + 2.7 \times 10^{-2}$ 3.38×10^{-2}</td> </tr> </table>	1. $(3.4 \times 10^2) + (5.2 \times 10^2)$ 8.6×10^2	2. $(9.5 \times 10^7) + (1.1 \times 10^6)$ $9.5 \times 10^7 + 0.11 \times 10^7$ 9.61×10^7	3. $(7.24 \times 10^{-4}) + (3.18 \times 10^{-5})$ $7.24 \times 10^{-4} + 0.318 \times 10^{-4}$ 7.558×10^{-4}	4. $(6.8 \times 10^{-3}) + (2.7 \times 10^{-2})$ $0.68 \times 10^{-2} + 2.7 \times 10^{-2}$ 3.38×10^{-2}
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Main Ideas/Questions	Notes	
	5. $(2.54 \times 10^8) + (4.2 \times 10^7)$ $2.54 \times 10^8 + 0.42 \times 10^8$ 2.96×10^8	6. $(1.83 \times 10^{-4}) + (7.32 \times 10^{-3})$ $0.183 \times 10^{-3} + 7.32 \times 10^{-3}$ 7.503×10^{-3}
	7. $(8.17 \times 10^4) - (2.6 \times 10^4)$ 5.57×10^4	8. $(7.59 \times 10^{-2}) - (2.32 \times 10^{-2})$ 5.27×10^{-2}
	9. $(5.02 \times 10^{12}) - (9.3 \times 10^{11})$ $5.02 \times 10^{12} - 0.93 \times 10^{12}$ 4.09×10^{12}	10. $(4.22 \times 10^{-6}) - (6.8 \times 10^{-7})$ $4.22 \times 10^{-6} - 0.68 \times 10^{-6}$ 3.54×10^{-6}
	11. $(2.16 \times 10^{-7}) - (8.4 \times 10^{-8})$ $2.16 \times 10^{-7} - 0.84 \times 10^{-7}$ 1.32×10^{-7}	12. $(5.3 \times 10^{-1}) - (2.7 \times 10^{-2})$ $5.3 \times 10^{-1} - 0.27 \times 10^{-1}$ 5.03×10^{-1}
MULTIPLYING & DIVIDING	Step 1: Multiply/Divide the numbers. Step 2: Use the <u>product rule</u> or <u>quotient rule</u> to change the exponent. Step 3: Use <u>LARS</u> to adjust the decimal and exponent in the final answer if needed.	
	1. $(2.8 \times 10^7) \times (1.9 \times 10^4)$ 5.32×10^{11}	2. $(1.3 \times 10^9) \times (4.7 \times 10^{-5})$ 6.11×10^4
	3. $(3.4 \times 10^{-2}) \times (8.5 \times 10^6)$ 28.9×10^4 2.89×10^5	4. $(2.5 \times 10^{11}) \times (7.5 \times 10^{10})$ 18.75×10^{21} 1.875×10^{22}
	5. $(3.7 \times 10^{-2}) \times (5.6 \times 10^{-3})$ 20.72×10^{-5} 2.072×10^{-4}	6. $(1.64 \times 10^{-24}) \times (3.5 \times 10^{27})$ 5.74×10^3
	7. $(3.72 \times 10^8) \div (1.2 \times 10^5)$ 3.1×10^3	8. $(6.4 \times 10^{-4}) \div (4.0 \times 10^6)$ 1.6×10^{-10}
	9. $(4.5 \times 10^3) \div (1.8 \times 10^{-7})$ 2.5×10^{10} 2.5×10^{10}	10. $(2.1 \times 10^7) \div (2.8 \times 10^3)$ 0.75×10^4 7.5×10^3
	11. $\frac{(2.7 \times 10^{-5})}{(2.4 \times 10^{-6})}$ 1.125×10^1	12. $\frac{(2.0 \times 10^6)}{(3.2 \times 10^{-7})}$ 0.625×10^{13} 6.25×10^{12}