

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

**WS 10E.1 – Scientific Notation**

#1-6, Express each number in scientific notation.

1. $\underline{3,000,000}$ $6$ $3 \times 10^6$	2. $\underline{0.00004}$ $5$ $4 \times 10^{-5}$	3. $\underline{531,000}$ $5$ $5.31 \times 10^5$
4. $\underline{0.0000000205}$ $8$ $2.05 \times 10^{-8}$	5. $\underline{81,000,000,000,000}$ $13$ $8.1 \times 10^{13}$	6. $\underline{0.0000000000000713}$ $13$ $7.13 \times 10^{-13}$

#7-12, Express each number in standard decimal notation.

7. $5 \times 10^4$ <i>move decimal 4 places RIGHT</i> $50,000$	8. $5 \times 10^{-4}$ <i>move decimal 4 places LEFT</i> $0.0005$	9. $6.23 \times 10^6$ <i>move decimal 6 places RIGHT</i> $6,230,000$
10. $6.23 \times 10^{-6}$ <i>move decimal 6 places LEFT</i> $0.00000623$	11. $4.012 \times 10^8$ <i>move decimal 8 places RIGHT</i> $401,200,000$	12. $4.012 \times 10^{-8}$ <i>move decimal 8 places LEFT</i> $0.00000004012$

#13-18, Simplify. Express answers in scientific notation.

13. $(\underline{3} \times \underline{10^8})(\underline{2} \times \underline{10^7})$ $= 6 \times 10^{15}$	14. $(\underline{9} \times \underline{10^4})(\underline{4} \times \underline{10^9})$ $= 36 \times 10^{13}$ <i>now adjust to sci notation</i> $= 3.6 \times 10^{14}$	15. $(\underline{4.6} \times \underline{10^{-3}})(\underline{2.1} \times \underline{10^{-5}})$ $= 9.66 \times 10^{-8}$
16. $\frac{\underline{8} \times \underline{10^{18}}}{\underline{4} \times \underline{10^6}}$ $= 2 \times 10^{12}$	17. $\frac{\underline{8} \times \underline{10^8}}{\underline{2} \times \underline{10^{20}}}$ $= 4 \times 10^{-12}$	18. $\frac{\underline{9} \times \underline{10^{-7}}}{\underline{3} \times \underline{10^{-12}}}$ $= 3 \times 10^5$