

NAME \_\_\_\_\_ DATE \_\_\_\_\_

SCIENTIFIC NOTATION (II)

DIRECTIONS: Carry out each of the following operations using scientific notation.

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|--|--|
| 1. $100 - 10$  | $\frac{9 \times 10^1}{3.1 \times 10^5} = 3 \times 10^5$                          |
| 2. $10,000 + 300,000$  | $\frac{1 \times 10^9}{1.2 \times 10^{11}} = 1 \times 10^{11}$                    |
| 3. $100,000 \times 10,000$   | $\frac{4 \times 10^{-9}}{1.04 \times 10^{-10}} = 1 \times 10^{-10}$              |
| 4. $40,000 \times 3,000,000$   | $\frac{2.17 \times 10^{13}}{5.819 \times 10^{12}} = 2.2 \times 10^{13}$          |
| 5. $0.001 \times 0.000004$   | $\frac{1.9 \times 10^{-8}}{2.21 \times 10^5} = 5.82 \times 10^{12}$              |
| 6. $0.00052 \times 0.0000002$  | $\frac{2.21 \times 10^5}{4.16 \times 10^4} = 1.9 \times 10^{-8}$                 |
| 7. $35,000 \times 620,000,000$   | $\frac{2.21 \times 10^5}{4.16 \times 10^4} = 2.2 \times 10^5$                    |
| 8. $103,000,000 \times 56,500$   | $\frac{4.16 \times 10^4}{1.788 \times 10^1} = 4.2 \times 10^4$                   |
| 9. $0.0037 \times 0.0000052$   | $\frac{1.788 \times 10^1}{2.268 \times 10^9} = 1.8 \times 10^1$                  |
| 10. $65,000,000 \times 0.0034$   | $\frac{2.268 \times 10^9}{1.709 \times 10^{-4}} = 2.3 \times 10^9$               |
| 11. $0.000682 \times 61,000,000$   | $\frac{1.709 \times 10^{-4}}{1.77 \times 10^4} = 1.7 \times 10^{-4}$             |
| 12. $0.3600 \times 0.00054 \times 92,000$  | $\frac{1.77 \times 10^4}{1 \times 10^{-1}} = 2 \times 10^4$                      |
| 13. $42,000,000 \times 120,000 \times 0.00045$   | $\frac{1 \times 10^{-1}}{1.05 \times 10^{-7}} = 1 \times 10^{-1}$                |
| 14. $0.00082 \times 83,400 \times 0.0000025$   | $\frac{1.05 \times 10^{-7}}{4.427 \times 10^8} = 1.0 \times 10^{-7}$ (even down) |
| 15. $4,500,000 \times 12,500 \times 0.0035 \times 0.00009$   | $\frac{4.427 \times 10^8}{1.135 \times 10^{-3}} = 4 \times 10^8$                 |
| 16. $\frac{100}{(50 \times 400 \times 0.050)}$ <i>note - needs brackets</i>  | $\frac{1.135 \times 10^{-3}}{1.86 \times 10^{-12}} = 1.1 \times 10^{-3}$         |
| 17. $\frac{(45,000 \times 0.0035)}{(600,000 \times 2,500)}$  | $\frac{1.86 \times 10^{-12}}{1.9 \times 10^{-12}} = 1.9 \times 10^{-12}$         |
| 18. $\frac{(4,500,000,000 \times 0.00000034)}{(8000 \times 0.000027 \times 0.000016)}$   |  |
| 19. $\frac{(0.00056 (14,500,000 \times 35,000))}{(18,900,000/0.0000755)}$ <i>note multilevel brackets but drop middle set for ease</i> |  |
| 20. $\frac{(75,000 \times 0.000062 \times 0.00015)}{(125,000,000,000,000 \times 0.0000030)}$   |  |

$\nearrow 1.25 \times 10^{14}$

## Algebra For Physics

Rearrange the following equations ( formulae) for the variable indicated

1.  $F = m a$  Find  $m$

$$m = \frac{F}{a}$$

2.  $P = \frac{E}{T}$  Find  $T$

$$T = \frac{E}{P}$$

3.  $P = \frac{E}{T}$  Find  $E$

$$E = P \times T$$

4.  $PE = mgh$  Find  $g$

$$g = \frac{PE}{mh}$$

5.  $V_2 = V_1 + at$  Find  $a$

$$V_2 - V_1 = at$$

$$\frac{V_2 - V_1}{t} = a$$

6.  $d = \frac{V_1 + V_2}{2}(t)$  Find  $t$

$$2d = (V_1 + V_2)(t)$$

$$\frac{2d}{V_1 + V_2} = t$$

7.  $KE = \frac{1}{2} mv^2$  Find  $m$

$$\frac{KE}{\frac{1}{2} v^2} = m \quad \text{OR} \quad \frac{2KE}{v^2} = m$$

8.  $KE = \frac{1}{2} mv^2$  Find  $v$

$$\frac{KE}{\frac{1}{2} m} = v^2 \quad \sqrt{\frac{KE}{\frac{1}{2} m}} = v$$

OR  $\sqrt{\frac{2KE}{m}} = v$

9.  $F = \frac{mv^2}{r}$  Find  $r$

$$\frac{mv^2}{F} = r$$

10.  $a = \frac{v_2 - v_1}{t}$  Find  $v_1$

$$at = v_2 - v_1$$
$$at - v_2 = -v_1 \Rightarrow -at + v_2 = v_1$$
$$v_2 - at = v_1$$

11.  $v = \frac{d}{t}$  Find  $d$

$$d = vt$$

12.  $P = IV$  Find  $V$

$$V = \frac{P}{I}$$