

Name: KEY

Period: _____

Significant Figures and Balancing Equations: Review

How many significant figures do the following numbers have?

- | | | | |
|----------------------------|----------|-----------------------------|----------|
| 1) 1234 | <u>4</u> | 11) 0.00030 | <u>2</u> |
| 2) 0.023 | <u>2</u> | 12) 1020010 | <u>6</u> |
| 3) 890 | <u>2</u> | 13) 780. | <u>3</u> |
| 4) 91010 | <u>4</u> | 14) 1000 | <u>1</u> |
| 5) 9010.0 | <u>5</u> | 15) 918.010 | <u>6</u> |
| 6) 1090.0010 | <u>8</u> | 16) 0.0001 | <u>1</u> |
| 7) 0.00120 | <u>3</u> | 17) 0.00390 | <u>3</u> |
| 8) 3.4×10^4 | <u>2</u> | 18) 8120 | <u>3</u> |
| 9) 9.0×10^3 | <u>2</u> | 19) 7.991×10^{-10} | <u>4</u> |
| 10) 9.010×10^{-2} | <u>4</u> | 20) 72 | <u>2</u> |

How many significant figures are in each of the following numbers?

- | | |
|----------------------|------------------------------------|
| 1) 5.40 <u>3</u> | 6) 1.2×10^3 <u>2</u> |
| 2) 210 <u>2</u> | 7) 0.00120 <u>3</u> |
| 3) 801.5 <u>4</u> | 8) 0.0102 <u>3</u> |
| 4) 1,000 <u>1</u> | 9) 9.010×10^{-6} <u>4</u> |
| 5) 101.0100 <u>7</u> | 10) 2,370.0 <u>5</u> |

Round these numbers to 3 significant digits.

- 11) 1,566,311 1,570,000 or 1.57×10^6
- 12) 2.7651×10^{-3} 2.77×10^{-3}
- 13) 84,592 84600 or 8.46×10^4
- 14) 0.0011672 0.00117 or 1.17×10^{-3}
- 15) 0.07759 0.0776

Put the following numbers into scientific notation and write down the number of significant digits in each:

a. 0.225 2.25×10^{-1} ; 3

b. 2.5 2.5×10^0 ; 2

c. 44,163 4.4163×10^4 ; 5

d. 20,190 2.019×10^4 ; 4

e. 0.00000000000991

9.91×10^{-12} ; 3

f. 7,000

7×10^3 ; 1

Perform the indicated arithmetic operations, and round the results to the appropriate number of significant digits.

a. $77.981 \times 2.33 = \underline{182}$

b. $4 \times 0.0665 = \underline{0.3}$

c. $17.34 + 4.900 + 23.1 = \underline{45.3}$

d. $9.80 - 4.762 = \underline{5.04}$

e. $3.9 \times 6.05 \times 420 = \underline{9900}$

f. $14.1 / 5 = \underline{3}$

g. $1001 + 16.23 = \underline{1017}$

h. $424.5 + 2.8461 = \underline{427.3}$

i. $9.9 - 9.54 = \underline{0.4}$

j. $7.3778 - 0.000265 = \underline{7.3775}$

k. $8.561 \times 10^9 - 6.21 \times 10^{10} = \underline{-5.35 \times 10^{10}}$

l. $(24.358)(6.4) = \underline{160}$

m. $48.6(0.6959) = \underline{33.8}$

n. $23081 / 0.8981 = \underline{25699.81071} \rightarrow \underline{25700}$ or 2.570×10^4

o. $(6.082 \times 10^{23})(5.0 \times 10^{-3}) = \underline{3.0 \times 10^{21}}$

p. $(9.9 \times 10^4) + (1.273 \times 10^2) = \underline{9.9 \times 10^4}$

Balancing on page 3.

Balancing Chemical Equations

Place the appropriate coefficients in the blanks.

