

Name: Key.

Practice Problems for Significant Figures

RULE -1: If the decimal is **Present**: Find the first non zero on the left, then count all digits to the **RIGHT**
 If the decimal is **Absent**: Find the first non zero on the right, then count all digits to the **LEFT**

RULE-2: Every digit in scientific notation is Significant

RULE-3: Any number that is counted is an EXACT number and has UNLIMITED significant digits.

How many significant figures do the following numbers have?

- | | | |
|---------------------------|-------------------------------------|--|
| 1) 1234 <u>(4)</u> | 8) 3.4×10^4 <u>2</u> | 14) 1000 <u>(1)</u> |
| 2) 0.023 <u>(2)</u> | 9) 9.0×10^{-3} <u>2</u> | 15) 918.010 <u>(6)</u> |
| 3) 890 <u>(2)</u> | 10) 9.010×10^{-2} <u>4</u> | 16) 0.0001 <u>(1)</u> |
| 4) 91010 <u>(4)</u> | 11) 0.00030 <u>2</u> | 17) 0.00390 <u>(3)</u> |
| 5) 9010.0 <u>(5)</u> | 12) 1020010 <u>6</u> | 18) 8120 <u>(3)</u> |
| 6) 1090.0016 <u>(8)</u> | 13) 780. <u>3</u> | 19) 7.991×10^{-10} <u>(4)</u> |
| 7) 0.00120 <u>(3)</u> | | 20) 72 <u>(2)</u> |

Rule for **Multiplication & Division** = Least number of **Sig Figs**

Rule for **Addition & Subtraction** = Least number of **decimal places** (highest value)

Perform the following calculations and round according to the rule above.

1) $8.20 + 2 = 10.20 = \boxed{10}$	2) $13.59 + 23.25 + 20 = 56.84 \rightarrow \boxed{57}$	3) $42.828 + 67.4629 = 110.2909 \therefore \boxed{101.291}$
4) $53.4028 - 14 = 39.4028 = \boxed{39}$	5) $39.3 - 0.804 = 38.496 = \boxed{38.5}$	6) $91.68 - 19.1 = 72.58 = \boxed{72.6}$

1) $7.6 \times 21.9 = \boxed{170}$	2) $2.15 \times 3.1 \times 100 = \boxed{700}$	3) $5.00009 \times 0.06 = \boxed{0.3}$
4) $38 / 7 = 5$	5) $500\,009 / 17,000 = \boxed{29412}$	6) $500\,000 / 5.002 = \boxed{100\,000}$

- | | |
|---|---|
| 1) $334.54 + 198 = \underline{533}$ | 5) $349 + 1.10 + 100 = \underline{450}$ |
| 2) $34.1 / 1.1 = \underline{31}$ | 6) $450 / 114 = \underline{3.9}$ |
| 3) $2.11 \times 10^3 / 34 = \underline{62}$ | 7) $298.01 + 34.112 = \underline{332.12}$ |
| 4) $0.0010 - 0.11 = \underline{-0.11}$ | 8) $84 \times 31.221 = \underline{2.6 \cdot 10^3}$ or <u>2600</u> |

Naming Acids Worksheet

Write the formula for each of the acids listed below:

Nitric acid	HNO_3
* Hydrocyanic acid *	HCN
Chloric acid	$HClO_3$
Acetic acid	CH_3COOH
Hydrobromic acid	HBr
Sulfurous acid	H_2SO_3
Chlorous acid	$HClO_2$
* Boric acid *	H_3BO_3
Hydrochloric acid	HCl
Phosphoric acid	H_3PO_4
Nitrous acid	HNO_2
Hydrofluoric acid	HF
Perchloric acid	$HClO_4$
Hydroiodic acid	HI
Phosphorous acid	H_3PO_3
Carbonic acid	H_2CO_3
Sulfuric acid	H_2SO_4
* Formic acid *	$HCOOH$

Name each of the following acids:

$HClO_4$	perchloric acid
$HCOOH$	formic acid
H_3PO_4	phosphoric acid
$HCl_{(aq)}$	hydrochloric acid
H_3BO_3	boric acid
H_2SO_4	sulphuric acid
HNO_2	nitrous acid
$HI_{(aq)}$	hydroiodic acid
CH_3COOH	acetic acid
$HF_{(aq)}$	hydrofluoric acid
H_3PO_3	phosphorous acid
$HCN_{(aq)}$	hydrocyanic acid
$HClO_3$	chloric acid
H_2CO_3	carbonic acid
H_2SO_3	sulphurous acid
$HClO_2$	chlorous acid
HNO_3	nitric acid
HBr	hydrobromic acid