Skills Study Sheet

Name: Mrs. Aitken.
Total: /

Significant Digit, Scientific Notation, Conversion & Graphing Study Sheet

1. Calculate the following questions and write the answer in the correct number of **significant digits**. Use scientific notation only where it is necessary.

a) 4.442 x 9.1 = 40.4222 → 40

b) 52.6 ÷ 3.1= 16.967 → 17

c) 13.26 x 9.1 = 120.666 → 1.2×10^{2}

d) 0.0022 ÷ 6.31 = 3.4866×10^{-4} → 3.5×10^{-4} or 0.00035

e) 25641 ÷ 0.561 = 45705.88 → 4.57×10^{4}

f) 13.40 x 23.465= 314.431 → 314.4

g) 0.340 x 5.100 = 1.734 → 1.73

h) 882 x 1.05 = 926.1 → 926

i) 0.050 x 13.4 = 0.670 → 0.67

j) 1.33 ÷ 423.11 = 0.00314 → 0.00314

2. Significant Digits in Addition and Subtraction Problems ***(REMEMBER THESE ARE THE QUESTIONS where you need to look at the decimal places!)***

a) 4.678 + 10.3 = 14.978 → 15.0

b) 6.88 – 2.11 = 4.77 → 4.77

c) 193.86 – 23.6 = 170.26 → 170.3

d) 769515.3+ 4567.11 = 774082.41 → 774082.4

e) 52.2 – 66.588 = -14.388 → -14.4

f) 80.000 – 6.00 = 74 → 74.00

g) 15 – 4.33 = 10.67 → 11

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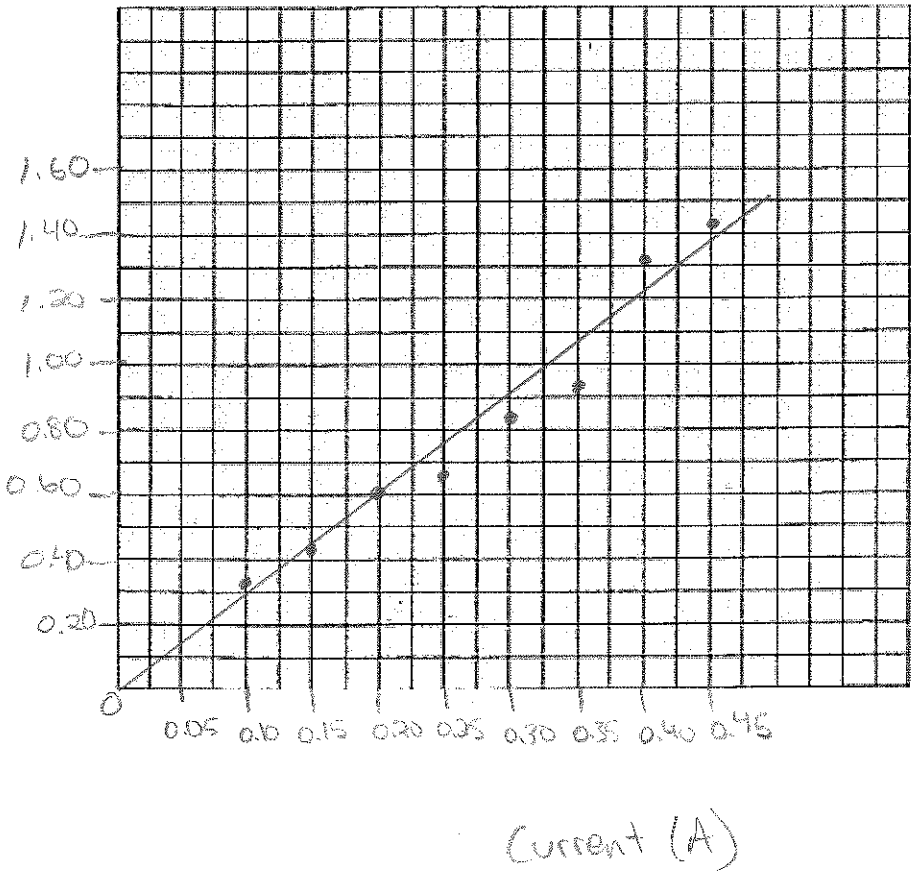
3. Graphing

A student performed an experiment to investigate how changing the current flowing through a resistor would affect the voltage across the resistor. The student would select a specific current value and then measure the voltage. The student repeated this over with several different current values. The results are shown in the table below. ***(Needs: proper x and y axis labels and spacing, title, all points plotted and line of best fit drawn)***

Current (A)	Voltage (V)
0.10	0.33
0.15	0.43
0.20	0.60
0.25	0.72
0.30	0.83
0.35	0.96
0.40	1.31
0.45	1.42

Voltage vs. Current of a Resistor



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4. Convert the following. Make sure your final answer is in **significant digits** (and scientific notation if necessary).

a) 150mm into m

$$150\text{mm} \times \frac{10^{-3}\ \text{m}}{1\ \text{mm}} = 0.150\text{m}$$

b) 0.688mL into L

$$0.688\text{mL} \times \frac{10^{-3}\ \text{L}}{1\ \text{mL}} = 0.000688\text{L} \text{ or } 6.88\times10^{-4}\text{L}$$

c) 62 mg into g

$$62\text{mg} \times \frac{10^{-3}\ \text{g}}{1\ \text{mg}} = 0.062\text{g} \text{ or } 6.2\times10^{-2}\text{g}$$

d) 0.335cm into mm

$$0.335\text{cm} \times \frac{10^{-2}\ \text{m}}{1\ \text{cm}} \times \frac{1\ \text{mm}}{10^{-3}\ \text{m}} = 3.35\text{mm}$$

e) 93 m/s into km/h

$$\frac{93\ \text{m}}{\text{s}} \times \frac{1\ \text{km}}{10^{3}\ \text{m}} \times \frac{60\ \text{s}}{1\ \text{min}} \times \frac{60\ \text{min}}{1\ \text{hr}} = 334.8\ \text{km/hr}$$

3.3×10^{2} km/hr

f) 15 km/h into m/s

$$\frac{15\ \text{km}}{\text{hr}} \times \frac{10^{3}\ \text{m}}{1\ \text{km}} \times \frac{1\ \text{hr}}{60\ \text{min}} \times \frac{1\ \text{min}}{60\ \text{s}} = 4.166\ \text{m/s}$$

4.2 m/s

g) 60g into mg

$$60\text{g} \times \frac{1\ \text{mg}}{10^{-3}\ \text{g}} = 60000\text{mg}$$

6.0×10^{4}mg

h) 26g into kg

$$26\text{g} \times \frac{1\ \text{kg}}{10^{3}\ \text{g}} = 0.026\text{kg} \text{ or } 2.6\times10^{-2}\text{kg}$$

i) 33km into m

$$33\text{km} \times \frac{10^{3}\ \text{m}}{1\ \text{km}} = 33000\text{m}$$

3.3×10^{4} m

j) 60.4 cm into dm

$$60.4\text{cm} \times \frac{10^{-2}\ \text{m}}{1\ \text{cm}} \times \frac{1\ \text{dm}}{10^{-1}\ \text{m}} = 6.04\ \text{dm}$$