## Science 10 Physics

### 2.1 Practice Assignment

Rounding, Significant Digits, Scientific Notation, Metric Conversion and Dimensional Analysis
A) Rounding - round to number indicated

| Value | Round to nearest <br> whole number, tenth <br> or hundredth | Rounded Answer |
| ---: | :--- | :--- |
| 0.1495 | Nearest hundredth |  |
| 29.95 | Nearest tenth |  |
| 139.49 | (Nearest whole <br> number |  |
| 80.46 | Nearest tenth |  |
| 5.89 | Nearest whole <br> number |  |
| 3.047 | Nearest hundredth |  |

B) Significant Digits - Count significant digits.

| Number | Number of Significant Digits |
| :---: | :---: |
| 12.42 |  |
| 0.01407 |  |
| 10.0 |  |
| 54.60 |  |
| 3.04 |  |
| $3.0 \times 10^{3}$ |  |
| $5.78 \times 10^{-6}$ |  |

C) Scientific Notation - Convert the following to Scientific Notation

| Value | \# of Significant Digits | Scientific Notation |
| :---: | :---: | :---: |
| 0.00706 | 2 |  |
| 4000000 | 3 |  |
| 43.059 | 3 |  |
| 0.00349 | 1 |  |
| 0.000062 | 2 |  |
| 5400000 | 2 |  |
| 6.7 | 1 |  |

D) Metric Conversion - Complete the following conversions.
a) $95 \mathrm{~km}=$
b) $15 \mathrm{~m}=$ $\qquad$ km
c) $150 \mathrm{~km}=$ $\qquad$ cm
d) $35 \mathrm{~mm}=$ $\qquad$ m

E) Dimensional Analysis - Complete the following conversions. Show all the steps. (ONLY completed by students planning to take Physics 20)
a) 1 year $\rightarrow$ minutes

### 2.2 Scalars and Vectors

1. Most of the quantities used to describe motion can be categorized as either vectors or scalars. A vector is a quantity that is fully described by both magnitude and direction. A scalar is a quantity that is fully described by magnitude alone. Categorize the following quantities by placing them under one of the two column headings.
displacement, distance, speed, velocity, acceleration

2. a. A quantity that is ignorant of direction is referred to as a $\qquad$ .
b. A quantity that is conscious of direction is referred to as a $\qquad$ .
3. True or False: An object can be moving for 10 seconds and still have zero displacement.
4. If the above statement is true, then describe an example of such a motion. If the above statement is false, then explain why it is false.
5. Suppose that you run along three different paths from location A to location B. Along which path(s) would your distance traveled be different than your displacement? $\qquad$

Path 1


## Path 2



Path 3
$\xrightarrow[\rightarrow-(~]{A}$
6. You run from your house to a friend's house that is 3 miles away. You then walk home.

a. What distance did you travel? $\qquad$
b. What was the displacement for the entire trip? $\qquad$
7. Observe the diagram below. A person starts at $A$, walks along the bold path and finishes at $B$. Each square is 1 km along its edge. Use the diagram in answering the next two questions.
a. This person walks a distance of $\qquad$ km.
b. This person has a displacement of $\qquad$ .


