**Physics – Measurement & Calculations - Distance and Speed Assignment – Value 70**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ June 3, 2019**

1. Round the following values to a certainty of three significant digits. Value 6
2. 3.78955 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 219.69 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 0.0068425 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 625.66 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. 0.092546 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. 12.26412 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Determine the number of significant digits for each of the following. Value 6
9. 0.00000465 = \_\_\_\_\_\_\_ significant digits
10. 1004.010 = \_\_\_\_\_\_\_ significant digits
11. 175.202 = \_\_\_\_\_\_\_ significant digits
12. 180 = \_\_\_\_\_\_\_ significant digits
13. 0.03254 = \_\_\_\_\_\_\_ significant digits
14. 1.22541 = \_\_\_\_\_\_\_ significant digits
15. Determine the most precise answer when adding 4.25 cm + 7.164 cm + 101.1 cm + 0.35 cm. Show value you attained when added and show the most precise answer. Value 2
16. Determine the most precise answer when multiplying 2.25 m x 20.326 m x 15.01 m. Value 2 Show value you attained when multiplied and show the most precise answer.
17. This term is defined as the total distance covered over the total time measured. Value 1

a. Instantaneous speed

b. Average speed

c. Constant speed.

1. This term is defined as the speed at which an object is travelling at a particular instant. Value 1

a. Instantaneous speed

b. Average speed

c. Constant speed.

1. This term is defined as an object travelling at the same speed over a period of time. Value 1

a. Instantaneous speed

b. Average speed

c. Constant speed.

FORMULAS:

**V av = Δd Δt = Δd Δd = V av . Δt**

 **Δt V av**

**NOTE: 1 m/s = 3.6 km/h 1 km = 1000 m 1 m = 100 cm 3600s/h**

 **24h/d 1min/60s 1h/60 min**

**For each of the following questions, indicate the formula and values used (indicate the final answer using the appropriate units).**

1. If two hikers walk the Trans Canada Trail for 12.0 h, and covered 600 km. What the average speed for the day? Value 6
2. Bill is trying to predict the time required to ride his bike to the nearby store. He knows the distance is 25 km and that he can average about 10 km/h, including slowing down for hills. Indicate *how long* the trip will take. Value 6
3. Mary walked for 2.5 h along a portion of the Trans Canada Trail at a speed of 10.50 km/h. What *distance* did Mary travel? Value 6
4. What *length of time* (in hours) would it take a hiker to travel a total distance of 15.0 m at an average speed of 2.1 m/s? Value 6
5. A car travelled 620 m at an average speed of 315 m/s. What length of time (in hours) did this take? Value 6
6. In a marathon race, one runner moving at 5.5 m/s passes a second runner moving at 4.5 m/s. What is the distance (in kilometers) between the runners 50 min after the one runner passed the other? Value 6

**CONVERSIONS**

**NOTE: 1 m/s = 3.6 km/h 1 km = 1000 m 1 m = 100 cm 3600s/h**

 **24h/d 1min/60s 1h/60 min**

1. Convert 410 s to h - Value 3
2. 30 m/s to km/h. Value 3
3. Convert 75 km/h to m/s. Value 3
4. Convert the following units of time to hours and provide the total: 32 d, 24 h, and 42 min Value 3
5. Convert 321 m/s to km/h. Value 3

**TOTAL VALUE 70**