

Name:

Thursday, February 13, 2020

T&amp;I:

/27

Com:

1. Round the following measured quantities to 3 sig. figs. [4]

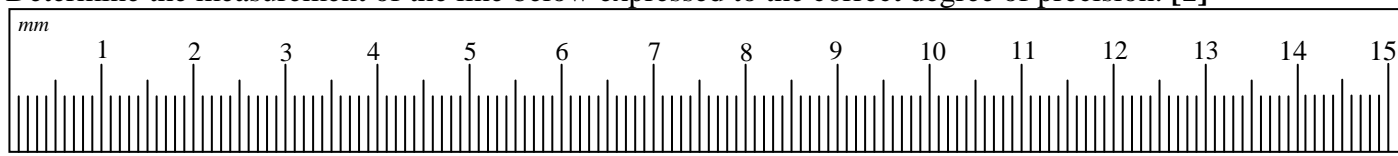
a)  $7940500 \text{ nm}$

d)  $6.005001 \text{ s}$

b)  $43650000 \text{ yr}$

c)  $75999 \text{ km}$

2. Determine the measurement of the line below expressed to the correct degree of precision. [1]



Measurement: \_\_\_\_\_

3. Based on the information found in **question 2** determine: [2]

a) The precision of the measurement

b) The precision of the tool

4. Following the correct rules for addition, subtraction, multiplication and division express your final answer to the appropriate precision / accuracy. **Show all your steps and state which rule applies.****No marks will be given for unjustified answers (don't forget the units). [6]**

a)  $2325.4100\text{mm} + 7160.0\text{cm} + 42.5466\text{m}$

b)  $1.876\text{m} \times 3456.2\text{m} \times 8.0\text{m}$

5. Complete the following conversions. **Show all your steps.** [5]

$$0.0009000 \text{ m/s}^2 \rightarrow \text{km/y}^2$$

6. Determine the relationship between the independent and dependent variable in form of  $y \propto x^n$ , for example. Use the extra column to test your results. Include the multipliers in this column as well [5]

y	x
3.1623	0.10
1.4142	0.50
1.0000	1.00
0.8165	1.50


7. The frequency of a guitar string can be determined by the following formula  $f = k \frac{\sqrt{T}}{l}$  where “T” stands for tension and “l” stands for length. If the initial frequency of the guitar string was 512Hz determine the new frequency if the tension is increased by 11.75% and the length is reduced by 22%. Use proportional reasoning (i.e. “pretty blue box”) [4]