Self Test 1

Chapter 1

After reading the chapter in your text and looking at the summary of the chapter one on this home page, test yourself by trying the following questions:

1. What are the Fundamental Quantities?
2. What is the symbol to dimension of length?
3. What is the symbol to dimension of mass?
4. What is the symbol to dimension of time?
5. Define, Meter, Kilogram, and Second.
6. 1cm = _____ m? 1Km = _____ m? 1mm = _____ m? = _____ cm?
7. 1ft = _____ in? 1mile = _____ ft? 1galon = _____ in³?
8. 1mile/hr = 0.447 m/sec \(\rightarrow\) 70 miles/hr = ______ m/sec?
9. What is approximate conversion of 1 m/sec to miles/hr?
10. 30 m/sec = ______ mph?
11. 21.6 cm \# of sig fig is: ______
12. Write 0.002106 cm in three sig. fig.
13. (21.6 m) (2.4 m) = ______
14. 21.0 + 2.50 + 14.36 = ______
15. What is the dimension of Speed?
16. What is the dimension of velocity?
17. What is the dimension of acceleration?
18. Are the following relations correct?

\[ V = a \times X \]
\[ V = t X^2 \]

\[ A \times X = V^2 \]

\[ X = V \cdot t + \frac{1}{2} a \cdot t^2 \]

\[ X = \frac{V^2}{(a \cdot t)} \]

Where; \( V = \) speed, \( a = \) Acceleration, \( X = \) Position, \( t = \) time

19. For what values of \( n \), the following relation is correct?

\[ X = \frac{1}{2} a^2 t^n \]

20. We have the following equation; \( X = f(t) + g(X) + h(V) \), where; \( X \) is the position, \( f \), \( g \), and \( h \), are three different functions. What are the dimensions of \( h \), \( g \), and \( h \)?

21. Find: \( m, n, i, j, \) and \( k \), in the following equations:

\[ V = X^n \cdot t^m \]

\[ a = \frac{X^k}{V^j} \]