

General Physics WS1

Show given information, equations, algebra, substitution, and units for full credit. Pay attention to significant figures. Use the back if you need more space. (1 mile = 1609 m)

1) 305 g to kg (**0.305 kg**)

8)
$$\frac{[4.6 \times 10^1][2.1 \times 10^{-4}]}{[1.64 \times 10^{34}]} = 5.9 \times 10^{-37}$$

2) 1.3 km to cm (**130,000 or 1.3×10^5 cm**)

9) $[27.3 \times 10^{-22}][2.0 \times 10^{18}] = 55 \times 10^{-4} \text{ or } 5.5 \times 10^{-3}$

3) 324 nm to m (**3.24×10^{-7} m**)

10)
$$\frac{[4.2 \times 10^{14}][9.4 \times 10^7]}{[6.4 \times 10^9]} = 6.2 \times 10^{12}$$

4) 3.05 ml to L (**0.00305 L**)

11)
$$\frac{[1.7 \times 10^9][3.9 \times 10^7]}{[1.40 \times 10^{-6}]} = 4.7 \times 10^{22}$$

5) 9.99 mg to g (**0.00999 g**)

12)
$$\frac{[7.4 \times 10^6][1.9 \times 10^{-3}]}{[5.3 \times 10^6][1.7 \times 10^{-8}][2.4 \times 10^5]} = 0.65 \text{ or } 6.5 \times 10^{-1}$$

6) 57.6 mm to km (**0.305 km**)

7) 30 m/s to mph (**70 mph**)

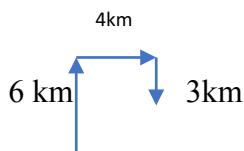
Distance versus displacement

1. A baseball player hits a single, runs 27.5 meters from the home plate to first base, overruns first base by 3.0 meters, and then returns comfortably to first base. What is the difference between the batter's distance and displacement?

6.0 meters

2. Hansel and Gretel walk 6 km north, 4 km east and then 3 km south.

a. Draw a picture representation of this scenario.



b. How many km did they walk? **13 km**

c. What is their displacement from home? Include the direction.

5 km 53° E of N or 37°N of E

3. The Rose Bowl is 3.6 km away from LCHS.

a. If you wanted to see the UCLA vs. USC football game at the Rose Bowl, what is the total distance driving there and back to LCHS? **7.2 km**

b. What is your displacement for this trip? **0 km**

4. Explain why the distance value can never be smaller than the displacement.