

Dimensional Analysis Worksheet

1. 261 g \rightarrow kg
2. 3 days \rightarrow seconds
3. 9,474 mm \rightarrow cm
4. 0.73 kL \rightarrow L
5. 5.93 cm³ \rightarrow m³
6. 498.82 cg \rightarrow mg
7. 1 ft³ \rightarrow m³
(Note: 3.28 ft = 1 m)
8. 1 year \rightarrow minutes
9. 175 lbs \rightarrow kg
(Note: 2.2 lb = 1 kg)
10. 4.65 km \rightarrow m
11. 22.4 kg/L to kg/mL
12. 0.74 Kcal/min to cal/sec
13. 1.42 g/cm² to mg/mm²
14. 10095 m/s to miles/s
15. 9.81 m/s² to ft/s²
16. 8.41 g/mL to Kg/L
17. 3.8 Km/sec to miles/year
18. 7.68 cal/sec to Kcal/min
19. 8.24 g/cm² to mg/mm²
20. 25 m/s to miles/hr
21. Convert 2.05×10^5 seconds into years.
22. Traveling at 65 miles/hour, how many minutes will it take to drive 125 miles to San Diego?
23. Convert 50 years into seconds. Express your answer in scientific notation.
24. Traveling at 65 miles/hour, how many feet can you travel in 22 minutes? (1 mile = 5280 feet)

25. One sphere has a radius of 5.10 cm; another has a radius of 5.00 cm. What is the difference in volume (in cubic centimeters) between the two spheres? Give the answer to the correct number of significant figures. The volume of a sphere is $(4/3)\pi r^3$, where $\pi = 3.1416$ and r is the radius.
26. The total amount of fresh water on earth is estimated to be $3.73 \times 10^8 \text{ km}^3$. What is this volume in cubic meters? In liters?
27. Sally Leadfoot was pulled over on her way from Syracuse to Ithaca by an officer claiming she was speeding. The speed limit is 65 mi/hr and Sally had traveled 97 km in 102 minutes. How fast was Sally's average speed? Does she deserve a ticket?
28. Marie was trying to make her favourite recipe but was not sure of the conversions. Would you eat these cookies?

Recipe	Marie's Conversions
2 ¼ Cups flour	0.5 litre flour
0.5 lbs choc. chips	2000 g choc. chips
325 degrees Fahrenheit	373 Kelvin

29. Winnipeg is refilling the pool. How many gallons of water will it take if the pool is 50m by 25m by 1.5m? (1 gallon = 3.786 L)
30. Meredith found some lace at a price of 4.0 £/meter in Ireland that she liked but was afraid she was paying too much for it. The same lace in the Canada would sell for \$5.99/yd. Was she paying too much for it? (\$1 = 0.498 £) (1 yard = 3 ft)
31. At a given point in its orbit, the moon is 2.4×10^5 miles from earth. How long does it take light from a source on earth to reach a reflector on the moon and then return to earth? (speed of light is $3.0 \times 10^8 \text{ m/s}$)
32. In Raiders of the Lost Ark, Indiana Jones tried to remove a gold idol from a booby-trapped pedestal. He replaces the idol with a bag of sand. If the idol has a mass of 2.00 kg, how many litres of sand must he place on the pedestal to keep the mass sensitive booby-trap from activating? (Density of sand is 3.00 g/cm^3)

Dimensional Analysis Worksheet #2

- 261 g \rightarrow kg
0.261 kg
- 3 days \rightarrow seconds
 3×10^5 s
- 9,474 mm \rightarrow cm
947.4 cm
- 0.73 kL \rightarrow L
730 L
- 5.93 cm³ \rightarrow m³
 5.93×10^{-6} m³
- 498.82 cg \rightarrow mg
4988.2 mg
- 1 ft³ \rightarrow m³
(Note: 3.28 ft = 1 m)
0.028m³
- 1 year \rightarrow minutes
525600
- 175 lbs \rightarrow kg
(Note: 2.2 lb = 1 kg)
79.5kg
- 4.65 km \rightarrow m
4650m
- 22.4 kg/L to kg/mL
0.0224kg/mL
- Convert 2.05×10^5 seconds into years.
 6.50×10^{-3} years
- Traveling at 65 miles/hour, how many minutes will it take to drive 125 miles to San Diego?
115 min
- Convert 50 years into seconds. Express your answer in scientific notation.
 1.58×10^9 s
- 0.74 Kcal/min to cal/sec
12 cal/sec
- 1.42 g/cm² to mg/mm²
14.2mg/mm²
- 10095 m/s to miles/s
6.3094 miles/s
- 9.81 m/s² to ft/s²
32.2 ft/s²
- 8.41 g/mL to Kg/L
8.41 Kg/L
- 3.8 Km/sec to miles/year
 7.5×10^7 miles/year
- 7.68 cal/sec to Kcal/min
0.461 Kcal/min
- 8.24 g/cm² to mg/mm²
82.4 mg/mm²
- 25 m/s to miles/hr
=56 miles/hr

24. Traveling at 65 miles/hour, how many feet can you travel in 22 minutes? (1 mile = 5280 feet)
a. 125 840 ft

25. One sphere has a radius of 5.10 cm; another has a radius of 5.00 cm. What is the difference in volume (in cubic centimeters) between the two spheres? Give the answer to the correct number of significant figures. The volume of a sphere is $(4/3)\pi r^3$, where $\pi = 3.1416$ and r is the radius.

32.0cm³

26. The total amount of fresh water on earth is estimated to be 3.73×10^8 km³. What is this volume in cubic meters? In liters?

3.73×10^{17} m³

3.73×10^{20} L

27. Sally Leadfoot was pulled over on her way from Syracuse to Ithaca by an officer claiming she was speeding. The speed limit is 65 mi/hr and Sally had traveled 97 km in 102 minutes. How fast was Sally's average speed? Does she deserve a ticket?

35.7 mi/h, no

28. Marie was trying to make her favourite recipe but was not sure of the conversions. Would you eat these cookies?

Recipe	Marie's Conversions
2 ¼ Cups flour	0.5 litre flour
0.5 lbs choc. chips	2000 g choc. chips
325 degrees Fahrenheit	373 Kelvin

29. Winnipeg is refilling the pool. How many gallons of water will it take if the pool is 50m by 25m by 1.5m? (1 gallon = 3.786 L)
 5×10^5 gallons

30. Meredith found some lace at a price of 4.0 £/meter in Ireland that she liked but was afraid she was paying too much for it. The same lace in the Canada would sell for \$5.99/yd. Was she paying too much for it? (\$1 = 0.498 £)

\$7.35/yard, yes

31. At a given point in its orbit, the moon is 2.4×10^5 miles from earth. How long does it take light from a source on earth to reach a reflector on the moon and then return to earth? (speed of light is 3.0×10^8 m/s)

$1.3 \text{ s} \times 2 = 2.6 \text{ s}$

32. In Raiders of the Lost Ark, Indiana Jones tried to remove a gold idol from a booby-trapped pedestal. He replaces the idol with a bag of sand. If the idol has a mass of 2.00 kg, how many litres of sand must he place on the pedestal to keep the mass sensitive booby-trap from activating? (Density of sand is 3.00 g/cm^3)

0.667 L

