Dimensional Analysis Practice

1. 261 g → kg

2. 3 days → seconds

3. 9,474 mm → cm

4. 0.73 kL → L

5. 5.93 cm^3 → m^3

6. 498.82 cg → mg

7. 1 ft^3 → m^3
   (Note: 3.28 ft = 1 m)

8. 1 year → minutes

9. 175 lbs → kg
   (Note: 2.2 lb = 1 kg)

10. 4.65 km → m

11. 22.4 kg/L to kg/mL

12. 0.74 Kcal/min to cal/sec

13. 1.42 g/cm^2 to mg/mm^2

14. 10095 m/s to miles/s

15. 9.81 m/s^2 to ft/s^2

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/cm^2 to mg/mm^2

20. 25 m/s to miles/hr

21. Convert 2.05 x 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 3.73×10^8 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 3.0×10^8 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

1. 261 g → kg
   0.261 kg

2. 3 days → seconds
   3 x 10^{5}s

3. 9,474 mm → cm
   947.4 cm

4. 0.73 kL → L
   730 L

5. 5.93 cm^3 → m^3
   5.93x10^{-6} m^3

6. 498.82 cg → mg
   4988.2 mg

7. 1 ft^3 → m^3
   (Note: 3.28 ft = 1 m)
   0.028m3

8. 1 year → minutes
   525600

9. 175 lbs → kg
   (Note: 2.2 lb = 1 kg)
   79.5kg

10. 4.65 km → m
    4650m

11. 22.4 kg/L to kg/mL
    0.0224kg/mL

12. 0.74 Kcal/min to cal/sec
    12 cal/sec

13. 1.42 g/cm^2 to mg/mm^2
    14.2mg/mm^2

14. 10095 m/s to miles/s
    6.3094 miles/s

15. 9.81 m/s^2 to ft/s^2
    32.2 ft/s^2

16. 8.41 g/mL to Kg/L
    8.41 Kg/L

17. 3.8 Km/sec to miles/year
    7.5 x 10^7 miles/year

18. 7.68 cal/sec to Kcal/min
    0.461 Kcal/min

19. 8.24 g/cm^2 to mg/mm^2
    82.4 mg/mm^2

20. 25 m/s to miles/hr
    =56 miles/hr

21. Convert 2.05 x 10^5 seconds into years.
    6.50 x 10^{-3} years

22. Traveling at 65 miles/hour, how many minutes will it take to drive 125 miles to San Diego?
    115 min

23. Convert 50 years into seconds. Express your answer in scientific notation.
    1.58 x 10^9 s

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.

$32.0cm^3$

26. The total amount of fresh water on earth is estimated to be 3.73×10^8 km^3. What is this volume in cubic meters? In liters?

3.73×10^{17} m^3
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 s x 2 = 2.6 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