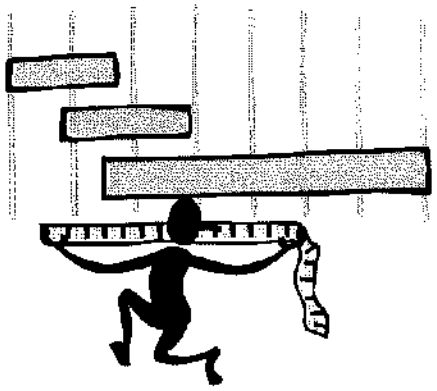
Unit Conversions[1]

Convert from metric to English or from English to metric as indicated. The only metric-to-English conversions you are allowed to use are 1m = 3.281 ft and 1gal = 3.79 L. Of course, you may use any English-to-English conversions (such as 1mi = 5280 ft) and any metric-to-metric conversions (such as 1km = 1000m).

a. 35m to feet
b. 170 ft to meters
c. 150 mi to kilometers
d. 47 km to miles
e. 4 ft to centimeters
f. 87 cm to inches
g. 54 in. to millimeters
h. 32 mi/hr to meters/second
i. 5 gal to liters
j. 16 L to quarts



[1] Johnson, Ken and Ted Herr. 2001. *Problem Solving Strategies, 2nd ed.* Key Curriculum Press. Pg. 257

Unit Conversions[1]

Convert from metric to English or from English to metric as indicated. The only metric-to-English conversions you are allowed to use are 1m = 3.281 ft and 1gal = 3.79 L. Of course, you may use any English-to-English conversions (such as 1mi = 5280 ft) and any metric-to-metric conversions (such as 1km = 1000m).

a. 35m to feet
b. 170 ft to meters
c. 150 mi to kilometers
d. 47 km to miles
e. 4 ft to centimeters
f. 87 cm to inches
g. 54 in. to millimeters
h. 32 mi/hr to meters/second
i. 5 gal to liters
j. 16 L to quarts

a. $35\text{m} \cdot \frac{3.281\text{ ft}}{1\text{m}} = \boxed{114.835\text{ ft.}}$

b. $170\text{ ft} \cdot \frac{1\text{m}}{3.281\text{ ft}} = \boxed{51.81\text{ m}}$

c. $150\text{ mi} \times \frac{5280\text{ ft}}{1\text{ mi}} \times \frac{1\text{m}}{3.281\text{ ft}} \times \frac{1\text{km}}{1000\text{m}} = \boxed{241.39\text{ km.}}$

d. $47\text{ km} \times \frac{1000\text{m}}{1\text{ km}} \times \frac{3.281\text{ ft.}}{1\text{m}} \times \frac{1\text{ mi}}{5280\text{ ft.}} = \boxed{29.21\text{ mi}}$

e. $4\text{ ft.} \times \frac{1\text{m}}{3.281\text{ ft}} \times \frac{100\text{cm}}{1\text{m}} = \boxed{121.91\text{ cm}}$

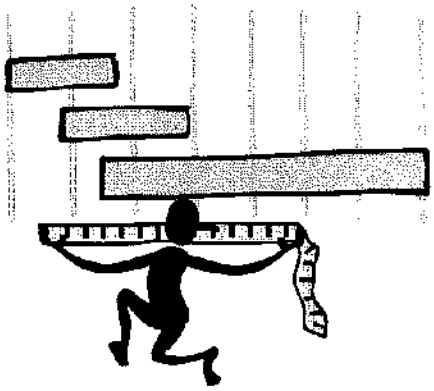
f. $87\text{cm} \times \frac{1\text{m}}{100\text{cm}} \times \frac{3.281\text{ ft}}{1\text{m}} \times \frac{12\text{ in}}{1\text{ ft}} = \boxed{34.25\text{ inches}}$

g. $54\text{in} \times \frac{1\text{ft}}{12\text{in}} \times \frac{1\text{m}}{3.281\text{ ft}} \times \frac{1000\text{mm}}{1\text{m}} = \boxed{1371.53\text{ mm}}$

h. $\frac{32\text{ mi}}{1\text{hr}} \times \frac{5280\text{ ft}}{1\text{ mi}} \times \frac{1\text{m}}{3.281\text{ ft}} \times \frac{1\text{hr}}{3600\text{s}} = \boxed{\frac{14.30\text{m}}{\text{s}}}$

i. $5\text{gal} \times \frac{3.79\text{ L}}{1\text{ gal}} = \boxed{18.95\text{ L}}$

j. $16\text{L} \times \frac{1\text{ gal}}{3.79\text{L}} \times \frac{4\text{ qts.}}{1\text{ gal}} = \boxed{16.89\text{ qts.}}$



* The first answer is exact.
The remaining answers have been rounded to the nearest hundredth.

[1] Johnson, Ken and Ted Herr. 2001. *Problem Solving Strategies, 2nd ed.* Key Curriculum Press. Pg. 257

Dimensional Analysis Worksheet #2

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 2.05×10^5 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)

Dimensional Analysis Worksheet #2

1. 261 g → kg
   0.261 kg

2. 3 days → seconds
   3×10^5s

3. 9,474 mm → cm
   947.4 cm

4. 0.73 kL → L
   730 L

5. 5.93 cm^3 → m^3
   5.93×10^{-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
    7.5×10^7 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 2.05×10^5 seconds into years.
    6.50×10^{-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.
    1.58×10^9 s