UNIT CONVERSION WORKSHEET

1. Convert the following measurements to the SI units
a)20,3 dam². ‖ b)2,5 mm³.‖ C)1,7 g/cm³. ‖d) 72 km/h.

2. Convert the following measurements to the SI units. Use scientific notation
a) 20 km/min ‖ b) 70 cm³ ‖ c) 1,3 g/mL ‖ d) 63,5 cm² ‖ e) 245,8 dm³ ‖ f) 0,8 g/cm³ ‖ g) 5 cm³ ‖ h) 0,02 g/cm³ ‖ i) 0,05 km²

3. Convert the following measurements to the units specified
a) 25 cm³ to m³.‖ b) 5kg/m³ to g/cm³‖ c) 10 km/h to m/s. ‖ d) 7 m/s to km/h ‖ e) 30 cm² to m²‖ f) 5.10⁻⁴tonnes to g ‖ g) 10 kg/m3 to g/cm3 ‖ h) 5mg/cm³ to kg/l ‖ i) 120 m/s a cm/h

KEY

1.

a) 20,3 dam². $20{,}3\,dam^2 \bullet \dfrac{1m^2}{10^2\,dam^2} = 2{,}03 \bullet 10^{-1}\,m^2$.

b) 2,5 mm³. $2{,}5\,mm^3 \bullet \dfrac{1m^3}{10^9\,mm^3} = 2{,}5 \bullet 10^{-9}\,m^3$.

c) 1,7 g/cm³. $1{,}7\,\dfrac{g}{cm^3} \bullet \dfrac{1kg}{10^3\,g} \bullet \dfrac{10^6\,cm^3}{1m^3} = 1{,}7 \bullet 10^3\,kg/m^3$

d) 72 km/h. $72\dfrac{km}{h} \bullet \dfrac{1h}{3600s} \bullet \dfrac{10^3\,m}{1km} = 20\,m/s$.

2.

a) 20 km/min. $20\dfrac{km}{min} \bullet \dfrac{10^3\,m}{1km} \bullet \dfrac{1min}{60s} = \dfrac{1}{3} \bullet 10^3\,m/s$.

b) 70 cm³. $70cm^3 \bullet \dfrac{1m^3}{10^6\,cm^3} = 7 \bullet 10^{-5}\,m^3$.

c) 1,3 g/ml. $1{,}3\dfrac{g}{ml} \bullet \dfrac{1kg}{10^3\,g} \bullet \dfrac{10^3\,ml}{1l} \bullet \dfrac{1l}{1dm^3} \bullet \dfrac{10^3\,dm^3}{1m^3} = 1{,}3kg/m^3$

d) 63,5 cm². $63{,}5cm^2 \bullet \dfrac{1m^2}{10^4\,cm^2} = 6{,}35 \bullet 10^{-3}\,m^2$.

e) 245,8 dm³. $245{,}8dm^3 \bullet \dfrac{1m^3}{10^3\,dm^3} = 2{,}5 \bullet 10^{-1}\,m^3$.

f) 0,8 g/cm³. $0{,}8\dfrac{g}{cm^3} \bullet \dfrac{1kg}{10^3 g} \bullet \dfrac{10^6\,cm^3}{1m^3} = 8 \bullet 10^2\,kg/m^3$.

g) 5 cm³. $5\,cm^3 \bullet \dfrac{1m^3}{10^6\,cm^3} = 5 \bullet 10^{-6}\,m^3$.

h) 0,02 g/cm³. $0{,}02\dfrac{g}{cm^3} \bullet \dfrac{1kg}{10^3 g} \bullet \dfrac{10^6\,dm^3}{1m^3} = 2 \bullet 10^1\,kg/m^3$.

i) 0,05 km². $0{,}05\,km^2 \bullet \dfrac{10^6\,m^2}{1km^2} = 5 \bullet 10^4\,m^2$.

3.

a) 25 cm³ a m³. $25\,cm^3 \bullet \dfrac{1m^3}{10^6\,cm^3} = 2{,}5 \bullet 10^{-5}\,m^3$.

b) 5kg/m³ a g/cm³. $5\dfrac{kg}{m^3} \bullet \dfrac{10^3 g}{1kg} \bullet \dfrac{1m^3}{10^6\,cm^3} = 5^{-3}\,g/cm^3$.

c) 10 km/h a m/s. $10\dfrac{km}{h} \bullet \dfrac{10^3 m}{1km} \bullet \dfrac{1h}{3600s} = \dfrac{1}{36} \bullet 10^2\,m/s = \dfrac{25}{9}\,m/s$

d) 7 m/s a km/h. $7\dfrac{m}{s} \bullet \dfrac{1km}{10^3 m} \bullet \dfrac{3600s}{1h} = 2{,}52 \bullet 10\,km/h$.

e) 30 cm² a m². $30\,cm^2 \bullet \dfrac{1m^2}{10^4\,cm^2} = 3 \bullet 10^{-3}\,m^2$.

f) 5.10⁻⁴t a g. $5 \bullet 10^{-4}\,t \bullet \dfrac{10^6 g}{1t} = 5 \bullet 10^2\,g$.

g) 10 kg/m³ a g/cm³. $10\dfrac{kg}{m^3} \bullet \dfrac{10^3 g}{1kg} \bullet \dfrac{1m^3}{10^6\,cm^3} = 1 \bullet 10^{-2}\,g/cm^3$.

h) 5mg/cm³ a kg/l. $5 \bullet \dfrac{mg}{cm^3} \bullet \dfrac{1kg}{10^6\,mg} \bullet \dfrac{10^3\,cm^3}{1dm^3} \bullet \dfrac{1dm^3}{1l} = 5 \bullet 10^{-3}\,kg/l$.

i) 120 m/s a cm/h. $120\dfrac{m}{s} \bullet \dfrac{3600s}{1h} \bullet \dfrac{10^2\,cm}{1m} = 4{,}32 \bullet 10^7\,cm/h$.