SI Prefixes and Scientific Notation Worksheet

Giga, mega, kilo, centi, milli, micro, nano and pico with real science and electronics units

Level: Ages 14–18 · Grades 9–12 · Years 10–13 (physics, chemistry, electronics)

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By Miguel Coelho · Edition 2.0
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Name _____ Class _____ Date _____ Score / 20

Convert each quantity and write the answer as a decimal number. Where the line has "× 10", also write the answer in scientific notation (a number from 1 to less than 10, times a power of ten).

REFERENCE

G giga = 10^{9}	M mega = 10^{6}	k kilo = 10^{3}	c centi = 10^{-2}
m milli = 10^{-3}	μ micro = 10^{-6}	n nano = 10^{-9}	p pico = 10^{-12}

WORKED EXAMPLE
4.7 kΩ = ? Ω → 4.7 × 10^{3} = 4700 → **4700 Ω = 4.7 × 10^{3} Ω**

Part A: to the base unit

1. 7.2 kΩ = _____ Ω

2. 29 mA = _____ A

3. 496 μs = _____ s

4. 85.2 MHz = _____ Hz

5. 543 nm = _____ m

6. 56.1 kPa = _____ Pa

7. 71 mg = _____ g

8. 6.5 GW = _____ W

Part B: from one prefix to another

9. 2.29 MW = _____ kW

10. 2338 pF = _____ nF

11. 2.4 GHz = _____ MHz

12. 7.5 μF = _____ nF

13. 1.06 mm = _____ μm

14. 1870 kJ = _____ MJ

15. 94.7 cm = _____ mm

16. 6660 ns = _____ μs

Part C: answer in scientific notation

17. 6.4 mm = _____ m = _____ × $10^{\square}$ m

18. 3903 km = _____ m = _____ × $10^{\square}$ m

19. 744 μg = _____ g = _____ × $10^{\square}$ g

20. 248 pm = _____ m = _____ × $10^{\square}$ m

Every answer is exact: prefixes are powers of ten. Answer key on page 2. More worksheets and the matching charts: allunitconversions.com/conversion-worksheets

Answer key — SI Prefixes and Scientific Notation Worksheet

For teachers · remove before handing out

#	Question	Answer	Working
PART A: TO THE BASE UNIT			
1	7.2 kΩ → Ω	**7200 Ω**	7.2 × 1000 = 7200
2	29 mA → A	**0.029 A**	29 ÷ 1000 = 0.029
3	496 µs → s	**0.000496 s = 4.96 × 10^{-4} s**	496 ÷ 1,000,000 = 0.000496
4	85.2 MHz → Hz	**85,200,000 Hz = 8.52 × 10^{7} Hz**	85.2 × 1,000,000 = 85,200,000
5	543 nm → m	**0.000000543 m = 5.43 × 10^{-7} m**	543 ÷ 1,000,000,000 = 0.000000543
6	56.1 kPa → Pa	**56,100 Pa**	56.1 × 1000 = 56,100
7	71 mg → g	**0.071 g**	71 ÷ 1000 = 0.071
8	6.5 GW → W	**6,500,000,000 W = 6.5 × 10^{9} W**	6.5 × 1,000,000,000 = 6,500,000,000
PART B: FROM ONE PREFIX TO ANOTHER			
9	2.29 MW → kW	**2290 kW**	2.29 × 1000 = 2290
10	2338 pF → nF	**2.338 nF**	2338 ÷ 1000 = 2.338
11	2.4 GHz → MHz	**2400 MHz**	2.4 × 1000 = 2400
12	7.5 µF → nF	**7500 nF**	7.5 × 1000 = 7500
13	1.06 mm → µm	**1060 µm**	1.06 × 1000 = 1060
14	1870 kJ → MJ	**1.87 MJ**	1870 ÷ 1000 = 1.87
15	94.7 cm → mm	**947 mm**	94.7 × 10 = 947
16	6660 ns → µs	**6.66 µs**	6660 ÷ 1000 = 6.66
PART C: ANSWER IN SCIENTIFIC NOTATION			
17	6.4 mm → m	**0.0064 m = 6.4 × 10^{-3} m**	6.4 ÷ 1000 = 0.0064
18	3903 km → m	**3,903,000 m = 3.903 × 10^{6} m**	3903 × 1000 = 3,903,000
19	744 µg → g	**0.000744 g = 7.44 × 10^{-4} g**	744 ÷ 1,000,000 = 0.000744
20	248 pm → m	**0.000000000248 m = 2.48 × 10^{-10} m**	248 ÷ 1,000,000,000,000 = 0.000000000248

Teaching notes: common mistakes

- Confusing m (milli, 10^{-3}) with M (mega, 10^{6}). The case of the letter matters.
- Writing a capital K for kilo. The SI symbol is a lower-case k (km, kg, kΩ).
- Leaving the number in front of a power of ten outside 1 to 10 in scientific notation: write 4.7 × 10^{3}, not 47 × 10^{2}.

Every answer is exact: prefixes are powers of ten. Every answer is calculated from the exact definitions and checked against the AllUnitConversions conversion engine before the PDF is produced. Matching reference chart: **allunitconversions.com/engineering-conversion-chart**. Free to print, copy and share with attribution (CC BY 4.0).