

MULTIPLES AND SUB-MULTIPLES

Below is a table showing how multiples and sub-multiples quantify values. This can be applied to any unit of measurement – the example below uses voltage V.

1 MV	=	Mega	=	1×10^6	=	1,000,000 V
1 KV	=	Kilo	=	1×10^3	=	1,000 V
1 V	=		=	1	=	1 V
1 mV	=	milli	=	1×10^{-3}	=	0.001 V
1 μ V	=	micro	=	1×10^{-6}	=	0.000,001 V
1 nV	=	nano	=	1×10^{-9}	=	0.000,000,001 V
1 pV	=	pico	=	1×10^{-12}	=	0.000,000,000,001 V

Now try these questions:

Question 1 Write the following values using the appropriate multiple or sub-multiple. Remember to observe the units involved.

e.g. 23,000 Ω in its shortest form = 23 K Ω

- (a) 360,000 W
- (b) 8.8×10^{-6} A
- (c) 2.7×10^3 Ω
- (d) 0.000,01 V
- (e) 0.000,000,22 F
- (f) 4,700,000 Ω
- (g) 0.000,0068 A

Question 2. Write the following values without using any multiples or sub-multiples, and then in standard form.

e.g. 6.8K Ω = 6,800 Ω = 6.8×10^3 Ω

- (a) 3.3K Ω
- (b) 4.7 MW
- (c) 12 mA
- (d) 470 pF
- (e) 50 μ V
- (f) 22.5nA

Question 3 Write down the largest value from each pair:

- 2,650 W or 26.5 KW
- 0.000,000,044 A or 4.4×10^{-9} A
- 0.000,01 V or 1 μ V
- 3.3×10^3 K Ω or 33,000 Ω