**SCIENTIFIC NOTATION (e.g. 3×108 )**

1. Write the following in scientific notation:

a) 370 000 000 b) 20 050 000 000 c) 930 000 000 000 000

d) 0.000 23 e) 0.00000006 f) 0.000 000 000 04

2. Write out the following in full:

a) 3 × 108 b) 2.75×104 c) 7.004 × 109

d) 8.4 × 10-3 e) 4.2× 108 f) 9.08 × 10-5

**PREFIXES (e.g. k, M, m, μ, n)**

3. Convert the following to volts:

a) 5 kV b) 23 mV c) 7 μV

d) 2.8 MV e) 67 nV f) 389 μV

4. Use the correct prefix to write the following in the shortest possible form:

a) 8000000 J b) 0.000004 J c) 6340 J

d) 0.005 J e) 0.000063 J f) 9806000 J

**BASIC UNITS (e.g. m, s, kg, A, V, J)**

Change the following to basic units:

5. a) 50 km b) 30000 km c) 57 mm

d) 9 cm e) 8.31 km f) 25 km 356 m 28 cm

6. a) 5 mm b) 3 h c) 2 min 40 s

d) 8min22s e) 7.45 mm f) 7 h 25 min 30s

7. a) 500 g b) 7400000 g c) 250 mg

d) 97.5 g e) 45 μg f) 3700 Mg

8. a) 800 mA b) 0.25 MA c) 375 kA

d) 35.6 μA e) 35.6 kA f) 9 430 000 μA

9. a) 750 mV b) 4.7 MV c) 450 kV

d) 53 μV e) 281kV f) 10670000 μV

10. a) 56 kJ b) 78 mJ c) 8000 MJ

d) 0.3 μJ e) 0.0075 MJ f) 3600 μJ

**SIGNIFICANT FIGURES**

11**.** Write the following numbers correct to three significant figures:

a) 54.293 b) 1239.24 c) 29.65001

d) 3259452 e) 0.85541 f) 2575000

**SCIENTIFIC NOTATION (e.g. 3×108 )**

1. Write the following in scientific notation:

|  |  |
| --- | --- |
| a) 370 000 000 | a) 3.7x108 |
| b) 20 050 000 000 | b) 2.005x1010 |
| c) 930 000 000 000 000 | c) 9.3x1014 |
| d) 0.000 23 | d) 2.3x10-4 |
| e) 0.000 000 06 | e) 6.0x10-8 |
| f) 0.000 000 000 04 | f) 4.0x10-11 |

2. Write out the following in full:

|  |  |
| --- | --- |
| a) 3 × 108 | a) 300 000 000 |
| b) 2.75×104 | b) 27 500 |
| c) 7.004 × 109 | c) 7 004 000 000 |
| d) 8.4 × 10-3 | d) 0.0084 |
| e) 4.2× 108 | e) 420 000 000 |
| f) 9.08 × 10-5 | f) 0.000 090 8 |

**PREFIXES (e.g. k, M, m, μ, n)**

3. Convert the following to volts:

|  |  |
| --- | --- |
| a) 5 kV | a) 5 000 or 5x103 V |
| b) 23 mV | b) 0.023 or 23x10-3 V |
| c) 7 μV | c) 0.000 007 or 7x10-6 V |
| d) 2.8 MV | d) 2800 000 or 2.8x106 V |
| e) 67 nV | e) 0.000 000 067 or 6.7x10-8 or 67x10-9 V |
| f) 389 μV | f) 0.000 389 or 3.89x10-4 or 389x10-6 V |

4. Use the correct prefix to write the following in the shortest possible form:

|  |  |
| --- | --- |
| a) 8 000 000 J | a) 8 MJ |
| b) 0.000 004 J | b) 4 μJ |
| c) 6 340 J | c) 6.34 kJ |
| d) 0.005 J | d) 5 mJ |
| e) 0.000 063 J | e) 63 μJ |
| f) 9 806 000 J | f) 9.806 MJ |

**BASIC UNITS (e.g. m, s, kg, A, V, J)** Change the following to basic units:

5.

|  |  |
| --- | --- |
| a) 50 km | a) 50 000 m |
| b) 30 000 km | b) 30 000 000 m |
| c) 57 mm | c) 0.057 m |
| d) 9 cm | d) 0.09 m |
| e) 8.31 km | e) 8 310 m |
| f) 25 km 356 m 28 cm | f) 25 356.28 m |

6.

|  |  |
| --- | --- |
| a) 5 mm | a) 0.005 m |
| b) 3 h | b) 10 800 s |
| c) 2 min 40 s | c) 160 s |
| d) 8min 22 s | d) 502 s |
| e) 7.45 mm | e) 0.00745 m |
| f) 7 h 25 min 30s | f) 26 730 s |

7.

|  |  |
| --- | --- |
| a) 500 g | a) 0.5 kg |
| b) 7 400 000 g | b) 7 400 kg or 7.4x103 kg |
| c) 250 mg | c) 0.000 25 kg or 2.5x10-4 kg |
| d) 97.5 g | d) 0.0975 kg or 97.5x10-3 kg |
| e) 45 μg | e) 0.000 000 045 kg or 4.5x10-8 kg |
| f) 3 700 Mg | f) 3 700 000 kg or 3.7x106 kg |

8.

|  |  |
| --- | --- |
| a) 800 mA | a) 0.8 A or 800x10-3 A |
| b) 0.25 MA | b) 250 000 A or 0.25x106 A |
| c) 375 kA | c) 375 000 A or 375x103 A |
| d) 35.6 μA | d) 0.000 035 6 A or 35.6x10-6 A or 3.56x10-5 A |
| e) 35.6 kA | e) 35 600 A or 35.6x103 A |
| f) 9 430 000 μA | f) 9.43 A or 9 430 000x10-6 A |

9.

|  |  |
| --- | --- |
| a) 750 mV | a) 0.75 V or 750x10-3 V |
| b) 4.7 MV | b) 4 700 000 V or 4.7x106 V |
| c) 450 kV | c) 450 000 V or 450x103 V |
| d) 53 μV | d) 0.000 053 V or 53x10-6 V or 5.3x10-5 V |
| e) 281kV | e) 281 000 V or 281x103 V |
| f) 10 670 000 μV | f) 10.67 V or 10 670 000x10-6 V |

10.

|  |  |
| --- | --- |
| a) 56 kJ | a) 56 000 J or 56x103 J |
| b) 78 mJ | b) 0.078 J or 78x10-3 J |
| c) 8000 MJ | c) 8 000 000 000 J or 8000x106 J or 8x109 J |
| d) 0.3 μJ | d) 0.000 000 3 J or 0.3x10-6 J or 3x10-7 J |
| e) 0.0075 MJ | e) 7 500 J or 7.5x103 J or 0.007 5x106 J |
| f) 3600 μJ | f) 0.003 6 J or 3.6x10-3 J or 3 600x10-6 J |

**SIGNIFICANT FIGURES**

11**.** Write the following numbers correct to three significant figures:

|  |  |
| --- | --- |
| a) 54.293 | a) 54.3 |
| b) 1239.24 | b) 1240 |
| c) 29.650 01 | c) 29.7 |
| d) 3 259 452 | d) 3 260 000 |
| e) 0.855 41 | e) 0.855 |
| f) 2 575 000 | f) 2 580 000 |