

Scientific Notation

1 What is the order of magnitude of these numbers?

$$5.1 \times 10^4 \quad \underline{\hspace{2cm}}$$

$$1.63 \times 10^{-10} \quad \underline{\hspace{2cm}}$$

2 Compare these numbers.

$$1 \times 10^8 \quad \bigcirc \quad 1 \times 10^{-8}$$

3 Compare these numbers.

$$8.5 \times 10^{23} \quad \bigcirc \quad 9.99 \times 10^{21}$$

4 Compare these numbers.

$$1 \times 10^3 \quad \bigcirc \quad 1,000$$

5 Convert this number into Scientific Notation.

38,500,000

6 Convert this number into regular form.

$$8.1 \times 10^4$$

7 Convert this number into Scientific Notation.

0.000045

8 Convert this number into regular form.

$$7.04 \times 10^{-3}$$

9 Convert this number into Scientific Notation.

6,250,000,000,000

10 Convert this number into regular form.

$$7 \times 10^7$$

Scientific Notation

1 What is the order of magnitude of these numbers?

$$5.1 \times 10^4 \quad \underline{4}$$

$$1.63 \times 10^{-10} \quad \underline{-10}$$

2 Compare these numbers.

$$1 \times 10^8 \quad (\gt) \quad 1 \times 10^{-8}$$

3 Compare these numbers.

$$8.5 \times 10^{23} \quad (\gt) \quad 9.99 \times 10^{21}$$

4 Compare these numbers.

$$1 \times 10^3 \quad (=) \quad 1,000$$

5 Convert this number into Scientific Notation.

$$\begin{array}{ccccccc} 3 & 8 & 5 & 0 & 0 & 0 & 0 \\ \hline 7 & 6 & 5 & 4 & 3 & 2 & 1 \end{array}$$

shift left
←

$$3.85 \times 10^7$$

6 Convert this number into regular form.

$$8.1 \times 10^4$$

$$\begin{array}{cccc} 8 & . & 1 & 0 & 0 & 0 & 0 \\ \hline 1 & 2 & 3 & 4 & & & \end{array}$$

shift right
→

$$81,000$$

7 Convert this number into Scientific Notation.

$$\begin{array}{cccccc} 0 & . & 0 & 0 & 0 & 0 & 4 & 5 \\ \hline 1 & 2 & 3 & 4 & 5 & & & \end{array}$$

shift right
→

$$4.5 \times 10^{-5}$$

8 Convert this number into regular form.

$$7.04 \times 10^{-3}$$

$$\begin{array}{cccc} 0 & . & 0 & 0 & 7 & . & 0 & 4 \\ \hline & & 3 & 2 & 1 & & & \end{array}$$

shift left
←

$$0.00704$$

9 Convert this number into Scientific Notation.

$$\begin{array}{cccccccccccc} 6 & , & 2 & 5 & 0 & , & 0 & 0 & 0 & , & 0 & 0 & 0 & 0 \\ \hline 12 & 11 & 10 & 9 & 8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 & & \end{array}$$

shift left
←

$$6.25 \times 10^{12}$$

10 Convert this number into regular form.

$$7 \times 10^7$$

$$\begin{array}{cccccccc} 7 & . & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 2 & 3 & 4 & 5 & 6 & 7 & & & & \end{array}$$

shift right
→

$$70,000,000$$

Comparing Numbers in Scientific Notation

A-SN 1

Instructions: Use the greater-than, less-than or equal signs to compare these numbers written in Scientific Notation.

1 2.5×10^6 1.8×10^7

2 3×10^5 6×10^{-9}

3 1×10^{15} 1×10^{20}

4 3.5×10^4 3.50×10^4

5 2.2×10^{-31} 6.63×10^{-34}

6 1.0×10^{-5} 1.0×10^5

7 1.0×10^{18} 1.000×10^{18}

8 9.8×10^7 4.1×10^7

9 5×10^{10} 7×10^9

10 7.4×10^{10} 6.022×10^{23}

11 1.25×10^{-6} 1.25×10^{-60}

12 3.2×10^{-25} 9.08×10^{25}

13 3×10^{100} 2×10^{101}

14 5.700×10^8 5.7×10^8

15 4×10^1 4×10^2

16 9.9×10^{-99} 7.7×10^{-77}

Scientific Notation Conversions - Set 1

A-SN 2

Instructions: Convert these numbers written in Scientific Noation into regular form.

1 3.5×10^7

3.5000000.
1 2 3 4 5 6 7

35,000,000

2 1.38×10^5

3 5.52×10^{-4}

4 7.6×10^{-8}

5 6.25×10^{12}

6 9.1×10^6

Instructions: Convert these numbers written in regular form into Scientific Notation.

1 4,20,000,000.

8 7 6 5 4 3 2 1

4.2×10^8

2 270,000

3 0.0000003

4 150,000,000,000

5 11,300,000

6 0.0000000391

Scientific Notation Conversions - Set 2

A-SN 3

Instructions: Convert these numbers written in Scientific Noation into regular form.

1 1.2×10^{-6}
 $0.\underbrace{000001}_.2$
 6 5 4 3 2 1

0.0000012

2 8.523×10^{-4}

3 5.4×10^{10}

4 7.2×10^7

5 3.008×10^5

6 4×10^{-9}

Instructions: Convert these numbers written in regular form into Scientific Notation.

1 0.0000095
 $\underbrace{0.000009}_.5$
 1 2 3 4 5 6

9.5×10^{-6}

2 0.00000000000055

3 29,100,000,000

4 0.000000061

5 418,300,000

6 0.0000725

Comparing Numbers in Scientific Notation

A-SN 1

Instructions: Use the greater-than, less-than or equal signs to compare these numbers written in Scientific Notation.

1 2.5×10^6 $<$ 1.8×10^7

2 3×10^5 $>$ 6×10^{-9}

3 1×10^{15} $<$ 1×10^{20}

4 3.5×10^4 $=$ 3.50×10^4

5 2.2×10^{-31} $>$ 6.63×10^{-34}

6 1.0×10^{-5} $<$ 1.0×10^5

7 1.0×10^{18} $=$ 1.000×10^{18}

8 9.8×10^7 $>$ 4.1×10^7

9 5×10^{10} $>$ 7×10^9

10 7.4×10^{10} $<$ 6.022×10^{23}

11 1.25×10^{-6} $>$ 1.25×10^{-60}

12 3.2×10^{-25} $<$ 9.08×10^{25}

13 3×10^{100} $<$ 2×10^{101}

14 5.700×10^8 $=$ 5.7×10^8

15 4×10^1 $<$ 4×10^2

16 9.9×10^{-99} $<$ 7.7×10^{-77}

Scientific Notation Conversions - Set 1

A-SN 2

Instructions: Convert these numbers written in Scientific Noation into regular form.

1 3.5×10^7
 $3.5000000.$
 1 2 3 4 5 6 7
 35,000,000

2 1.38×10^5
 $1.38000.$
 1 2 3 4 5
 138,000

3 5.52×10^{-4}
 0.000552
 4 3 2 1
 0.000552

4 7.6×10^{-8}
 0.000000076
 8 7 6 5 4 3 2 1
 0.000000076

5 6.25×10^{12}
 $6.250000000000.$
 1 2 3 4 5 6 7 8 9 10 11 12
 6,250,000,000,000

6 9.1×10^6
 $9.100000.$
 1 2 3 4 5 6
 9,100,000

Instructions: Convert these numbers written in regular form into Scientific Notation.

1 4,20,000,000.
 8 7 6 5 4 3 2 1
 4.2×10^8

2 270,000.
 5 4 3 2 1
 2.7×10^5

3 0.0000003.
 1 2 3 4 5 6 7
 3×10^{-7}

4 150,000,000,000.
 11 10 9 8 7 6 5 4 3 2 1
 1.5×10^{11}

5 11,300,000.
 7 6 5 4 3 2 1
 1.13×10^7

6 0.0000000391
 1 2 3 4 5 6 7 8
 3.91×10^{-8}

Scientific Notation Conversions - Set 2

A-SN 3

Instructions: Convert these numbers written in Scientific Noation into regular form.

1 1.2×10^{-6}
 0.0000012
 6 5 4 3 2 1

0.0000012

2 8.523×10^{-4}
 0.0008523
 4 3 2 1

0.0008523

3 5.4×10^{10}
 $5.4000000000.$
 1 2 3 4 5 6 7 8 9 10

$54,000,000,000$

4 7.2×10^7
 $7.2000000.$
 1 2 3 4 5 6 7

$72,000,000$

5 3.008×10^5
 $3.00800.$
 1 2 3 4 5

$300,800$

6 4×10^{-9}
 $0.000000004.$
 9 8 7 6 5 4 3 2 1

0.000000004

Instructions: Convert these numbers written in regular form into Scientific Notation.

1 0.0000095
 1 2 3 4 5 6

9.5×10^{-6}

2 0.0000000000055
 1 2 3 4 5 6 7 8 9 10 11 12

5.5×10^{-12}

3 $29,100,000,000.$
 10 9 8 7 6 5 4 3 2 1

2.91×10^{10}

4 0.000000061
 1 2 3 4 5 6 7 8

6.1×10^{-8}

5 $418,300,000.$
 8 7 6 5 4 3 2 1

4.183×10^8

6 0.0000725
 1 2 3 4 5

7.25×10^{-5}