

STANDARD FORM - PRACTICE QUESTIONS



metatutor

1.

Convert each number from standard form.

$$(a) 9 \times 10^5 = 900000$$

$$(b) 4.5 \times 10^2 = 450$$

$$(c) 8.1 \times 10^4 = 81000$$

$$(d) 7.77 \times 10^3 = 7770$$

$$(e) 1.18 \times 10^4 = 11800$$

$$(f) 3.9 \times 10^5 = 390000$$

$$(g) 1.26 \times 10^6 = 1260000$$

$$(h) 9.2 \times 10^4 = 92000$$

$$(i) 5.533 \times 10^7 = 55330000$$

$$(j) 8 \times 10^5 = 800000$$

2.

Convert each number from standard form.

$$(a) 5 \times 10^{-2} = 0.05$$

$$(b) 7.81 \times 10^{-3} = 0.00781$$

$$(c) 1.95 \times 10^{-4} = 0.000195$$

$$(d) 5.9 \times 10^{-5} = 0.000059$$

$$(e) 6.34 \times 10^{-2} = 0.0634$$

$$(f) 7 \times 10^{-6} = 0.000007$$

$$(g) 9.234 \times 10^{-3} = 0.009234$$

$$(h) 8.01 \times 10^{-4} = 0.000801$$

$$(i) 6.5 \times 10^{-6} = 0.0000065$$

$$(j) 3.31 \times 10^{-2} = 0.0331$$

3.

Convert each number into standard form.

- (a) 2000 = 2×10^3
(b) 4500 = 4.5×10^3
(c) 781000 = 7.81×10^5
(d) 660000 = 6.6×10^5
(e) 1250000 = 1.25×10^6
(f) 9800 = 9.8×10^3
(g) 1457000 = 1.457×10^6
(h) 90800 = 9.08×10^4
(i) 40000000 = 4×10^7
(j) 72500 = 7.25×10^4
(k) 2020 = 2.02×10^3

4.

Convert each number into standard form.

- (a) 0.03 = 3×10^{-2}
(b) 0.0065 = 6.5×10^{-3}
(c) 0.000015 = 1.5×10^{-5}
(d) 0.00456 = 4.56×10^{-3}
(e) 0.0235 = 2.35×10^{-2}
(f) 0.00000001 = 1×10^{-8}
(g) 0.00803 = 8.03×10^{-3}
(h) 0.0022 = 2.2×10^{-3}
(i) 0.0003928 = 3.928×10^{-4}
(j) 0.09099 = 9.099×10^{-2}
(k) 0.00216 = 2.16×10^{-3}

5.

Convert each number from standard form.

- (a) $8 \times 10^4 = 80000$
(b) $1.12 \times 10^5 = 112000$
(c) $8.9 \times 10^{-2} = 0.089$
(d) $7.24 \times 10^6 = 7240000$
(e) $4.467 \times 10^{-3} = 0.004467$
(f) $3 \times 10^{-7} = 0.0000003$
(g) $9.04 \times 10^{-4} = 0.000904$
(h) $7.355 \times 10^5 = 735500$
(i) $2.21 \times 10^{-5} = 0.0000221$
(j) $7.102 \times 10^3 = 7102$
(k) $9.9999 \times 10^8 = 999990000$

6.

Convert each number into standard form.

- (a) $0.067 = 6.7 \times 10^{-2}$
(b) $120000 = 1.2 \times 10^5$
(c) $9180 = 9.18 \times 10^3$
(d) $0.00004 = 4 \times 10^{-5}$
(e) $0.02907 = 2.907 \times 10^{-2}$
(f) $562000000 = 5.62 \times 10^8$
(g) $0.001111 = 1.111 \times 10^{-3}$
(h) $0.00000035 = 3.5 \times 10^{-7}$
(i) $9800000 = 9.8 \times 10^6$
(j) $0.000455 = 4.55 \times 10^{-4}$
(k) $67550000 = 6.755 \times 10^7$

7.

Put these numbers into order, smallest to largest.

$$6.2 \times 10^5$$

620000

$$6.3 \times 10^3$$

6300

$$6.4 \times 10^{-2}$$

0.064

$$6.5 \times 10^4$$

65000

$$6.4 \times 10^{-2}, 6.3 \times 10^3, 6.5 \times 10^4, 6.2 \times 10^5$$

8.

Put these numbers into order, smallest to largest.

$$1.55 \times 10^2$$

155

$$1.56 \times 10^3$$

1560

$$1.57 \times 10^3$$

1570

$$1.58 \times 10^2$$

158

$$1.55 \times 10^2, 1.58 \times 10^2, 1.56 \times 10^3, 1.57 \times 10^3$$

9.

Put these numbers into order, smallest to largest.

$$6.14 \times 10^4$$

61400

$$6.145 \times 10^5$$

614500

$$6.144 \times 10^4$$

61440

$$6.4 \times 10^3$$

6400

$$6.4 \times 10^3, 6.14 \times 10^4, 6.144 \times 10^4, 6.145 \times 10^5$$

10.

Put these numbers into order, smallest to largest.

$$3 \times 10^{-2}$$

0.03

$$3.1 \times 10^{-3}$$

0.0031

$$3.01 \times 10^{-4}$$

0.000301

$$2.9 \times 10^{-3}$$

0.0029

$$3.01 \times 10^{-4}, 2.9 \times 10^{-3}, 3.1 \times 10^{-3}, 3 \times 10^{-2}$$

11.

Put these numbers into order, smallest to largest.

$$1.11 \times 10^6$$

1110000

$$1.01 \times 10^5$$

101000

$$1.001 \times 10^6$$

1001000

$$1.1 \times 10^4$$

11000

$$1.1 \times 10^4, 1.01 \times 10^5, 1.001 \times 10^6, 1.11 \times 10^6$$

12.

Put these numbers into order, smallest to largest.

$$5.5 \times 10^{-1}$$

0.55

$$56 \times 10^{-3}$$

0.056

$$55.6 \times 10^{-2}$$

0.556

$$560 \times 10^{-5}$$

0.00560

$$560 \times 10^{-5}, 56 \times 10^{-3}, 5.5 \times 10^{-1}, 55.6 \times 10^{-2}$$

13.

Put these numbers into order, smallest to largest.

$$0.7 \times 10^6$$

700000

$$7.1 \times 10^5$$

710000

$$705 \times 10^3$$

705000

$$71.2 \times 10^3$$

71200

$$71.2 \times 10^3, 0.7 \times 10^6, 705 \times 10^3, 7.1 \times 10^5$$

14.

Put these numbers into order, smallest to largest.

$$9.09 \times 10^{-6}$$

0.00000909

$$908 \times 10^{-7}$$

0.0000908

$$91 \times 10^{-6}$$

0.000091

$$9.009 \times 10^{-6}$$

0.000009009

$$9.009 \times 10^{-6}, 9.09 \times 10^{-6}, 908 \times 10^{-7}, 91 \times 10^{-6}$$

15.

Put these numbers into order, smallest to largest.

$$7156 \times 10^{-2}$$

71.56

$$0.0071 \times 10^5$$

710

$$7.16 \times 10^2$$

716

$$0.761 \times 10^3$$

761

$$7156 \times 10^{-2}, 0.0071 \times 10^5, 7.16 \times 10^2, 0.761 \times 10^3$$

16.

Put these numbers into order, smallest to largest.

$$0.0004 \times 10^8$$

40000

$$4001 \times 10^{-2}$$

40.01

$$0.41 \times 10^4$$

4100

$$410000 \times 10^{-5}$$

4.1

$$410000 \times 10^{-5}, 4001 \times 10^{-2}, 0.41 \times 10^4, 0.0004 \times 10^8$$

17.

Work out $(6.5 \times 10^5) + (2 \times 10^4)$.

Give your answer in standard form.

$$\begin{array}{r} 650000 \\ + 20000 \\ \hline 670000 \end{array} = 6.7 \times 10^5$$

18.

Work out $(9.01 \times 10^5) + (6 \times 10^3)$.

Give your answer in standard form.

$$\begin{array}{r} 901000 \\ + 6000 \\ \hline 907000 \end{array} = 9.07 \times 10^5$$

19.

Work out $(4.3 \times 10^7) - (6 \times 10^5)$.

Give your answer in standard form.

$$\begin{array}{r} 43000000 \\ - 600000 \\ \hline 42400000 \end{array} = 4.24 \times 10^7$$

20.

Work out $(8.2 \times 10^5) + (4.714 \times 10^7)$.

Give your answer in standard form.

$$\begin{array}{r} 820000 \\ + 47140000 \\ \hline 47960000 \end{array} = 4.796 \times 10^7$$

21.

Work out $(5.75 \times 10^9) - (4 \times 10^6)$.

Give your answer in standard form.

$$\begin{array}{r} 5750000000 \\ - 4000000 \\ \hline 5746000000 \end{array} = 5.746 \times 10^9$$

22.

Work out $(3 \times 10^3) \times (2 \times 10^4)$.

Give your answer in standard form.

$$6 \times 10^7$$

23.

Work out $(8 \times 10^7) \div (4 \times 10^5)$.

Give your answer in standard form.

$$2 \times 10^2$$

24.

Work out $(9 \times 10^3) \times (2 \times 10^3)$.

Give your answer in standard form.

$$18 \times 10^6 = 1.8 \times 10^7$$

25.

Work out $(3 \times 10^{10}) \div (4 \times 10^3)$.

Give your answer in standard form.

$$0.75 \times 10^7 = 7.5 \times 10^6$$

26.

Work out $(4 \times 10^{10}) \div (5 \times 10^3)$.

Give your answer in standard form.

$$0.8 \times 10^7 = 8 \times 10^6$$

27.

A floppy disk can store 1,600,000 bytes of data.
Steve needs to store 4.8×10^7 bytes of data.

How many floppy disks would Steve need to store the data?

$$\frac{480000000}{1600000} = \frac{480}{16} = \underline{30}$$

28.

The surface area of Earth is $4.95 \times 10^8 \text{ km}^2$.
The surface area of Mars is $6.7 \times 10^6 \text{ km}^2$.

What is the difference in surface area between Earth and Mars? Give your answer in standard form.

$$\begin{array}{r} 495000000 \\ - \quad 67000000 \\ \hline 488300000 \end{array} = \underline{4.883 \times 10^8 \text{ km}^2}$$

29.

The thickness of a piece of paper is 1.25×10^{-4} metres.
 5×10^5 pieces of paper are piled on top of each other.

How tall is the pile of paper? Give your answer in centimetres.

$$\begin{aligned} 6.25 \times 10^1 &= 62.5 \text{ metres} \\ &= \underline{6250 \text{ cm}} \end{aligned}$$

30.

A snail moves at a speed of 8×10^{-3} metres per second.

How many seconds would it take the snail to travel 200 metres?

$$\begin{aligned} \text{S}^{\text{D}} \text{T} \quad T &= \frac{D}{S} = \frac{200}{8 \times 10^{-3}} = \frac{2 \times 10^2}{8 \times 10^{-3}} \\ &= 0.25 \times 10^5 \\ &= \underline{25000 \text{ seconds}} \end{aligned}$$