



परमाणु ऊर्जा शिक्षण संस्था
Atomic Energy Education Society
कार्यपत्रक / Worksheet (2025-26)

कक्षा /Class: VIII विषय /Subject: Mathematics माह/ Month: _____ अंक/Marks: 40

दिया गया पाठ्यक्रम/Portion covered: _____

विद्यार्थी का नाम/Name of the student: L-2 Power Play (2)

अनुक्रमांक /Roll No. _____ कक्षा/अनुभाग Class /Sec.: _____ दिनांक /Date: _____

GENERAL INSTRUCTIONS: -

1. All the questions are compulsory.
2. Question paper is divided into five sections A, B, C, D and E.
3. Calculators are not allowed.

SECTION-A [01x10=10 marks]

- 1 By what number should $(-6)^{-1}$ be multiplied so that the product is equal to $(9)^{-1}$ [1]
a) $\frac{3}{2}$ b) $\frac{1}{6}$ c) $\frac{-2}{3}$ d) $\frac{1}{4}$
- 2 The value of $[(5^{-1} - 6^{-1})^{-1} - (3^{-1} - 4^{-1})^{-1}]$ is [1]
a) 24 b) 30 c) 18 d) 12
- 3 For a non - zero rational number p, $p^{13} \div p^8$ is equal to [1]
a) p^{-5} b) p^{-19} c) p^5 d) p^{21}
- 4 The standard form for 0.000064 is [1]
a) 64×10^{-4} b) 6.4×10^6
c) 6.4×10^{-5} d) 64×10^4
- 5 Find the value of the expression $4 \times (-x)^2$, for $x=5$. [1]
a) 4 b) 25 c) 50 d) 100
- 6 The value of $3^5 \div 3^{-6}$ is [1]
a) 3^5 b) 3^{11} c) 3^{-6} d) 3^{-11}
- 7 The value of $\left(\frac{2}{5}\right)^{-2}$ is [1]

a) $\frac{5}{2}$ b) $\frac{4}{5}$ c) $\frac{25}{4}$ d) $\frac{4}{25}$

8 Which one among the following is the greatest? [1]

$5^{-4}, 2^{-4}, 3^{-4}, 4^{-4}, 6^{-4}$

a) 5^{-4} b) 2^{-4} c) 6^{-4} d) 4^{-4}

9 Find the value of m for which $5^m \div 5^{-3} = 5^5$. [1]

a) 3 b) 2 c) 4 d) 5

10 The value of $(12^2 + 5^2)^{1/2}$ is [1]

a) 11 b) 15 c) 12 d) 13

SECTION - B [02x04=08 marks]

11 Find the value of $\frac{16 \times 10^2 \times 64}{24 \times 4^2}$ [2]

12 Find m so that $(-3)^{m+1} \times (-3)^5 = (-3)^7$ [2]

13 Express in standard form: **2 years in seconds** [2]

14 Find the value of: $(3^0 + 4^{-1}) \times 2^2$ [2]

SECTION-C [03x03=09 marks]

15 Find x, if $6^{2x} \div 6^{-4} = 36$. [3]

16 Evaluate: $\left\{ \left(\frac{1}{3} \right)^{-1} - \left(\frac{1}{4} \right)^{-1} \right\}^{-1}$ [3]

17 Simplify and express the result in power notation with positive exponent. $(-4)^5 \div (-4)^8$. [3]

SECTION-D [05x01=05 marks]

18. In a stack there are 6 books each of thickness 30mm and 6 paper sheets each of thickness 0.016mm. What is the total thickness of the stack? [5]

SECTION-E [04x02=08 marks]

19. **Read the text carefully and answer the questions: Let us see some examples:** [4]

- Thickness of a piece of paper is 0.0016 cm.

- Diameter of a wire on a computer chip is 0.000003 m. These are very small numbers ,Let us see how to express these numbers

Steps to Express Small Numbers in Standard Form

- First, count how many digits there are from the decimal point to the last digit as n
- For example in 0.000035, n = 6.
- Place a multiplication sign and write the counted digits in base 10 with a negative sign (10^{-6}).
- Suppose the number has two or more non - zero digits at the end. Then, write down the digits and place decimal after the first digit. (here 3.5)
- Now subtract the number of digits appearing after the decimal point from the number calculated in the first step ($6 - 1 = 5$).
- Place a multiplication sign and use a negative sign as an exponent to write down the counted digits. This becomes 3.5×10^{-5}

Other Examples are : $0.0000065 \text{ km} = 6.5 \times 10^{-6} \text{ km}$

$0.00000078 \text{ m} = 7.8 \times 10^{-7} \text{ m}$

(a) How you will write 0.00075 in standard form?

- a) 7.5×10^{-3}
- b) 7.5×10^{-4}
- c) 7.5×10^{-5}
- d) 75×10^{-4}

(b) Size of a bacteria is 0.0000005 m, How it will be written?

- a) $5 \times 10^{-7} \text{ m}$
- b) $5 \times 10^{-4} \text{ m}$
- c) $5 \times 10^{-5} \text{ m}$
- d) $7.5 \times 10^{-3} \text{ m}$

(c) 1 micron is equal to 0.000001 m, How it will be written?

- a) 10^{-4} m

b) 10^{-5} m

c) 10^{-6} m

d) 10^{-3} m

(d) Fill in the blanks:

Size of a red blood cell = 0.0000075 m = _____ $\times 10^{-6}$ m.

20. The diameter of the Sun is 1.4×10^9 m and the diameter of the Earth is 1.2756×10^7 m.

Suppose you want to compare the diameter of the Earth, with the diameter of the Sun.

Diameter of the Sun = 1.4×10^9 m

Diameter of the earth = 1.2756×10^7 m

Therefore

$$\frac{(1.4 \times 10^9)}{(1.2756 \times 10^7)}$$

$$= \frac{1.4}{1.2756} \times 10^{9-7}$$

$$= \frac{1.4 \times 10^2}{1.2756}$$

which is approximately 100

So, the diameter of the Sun is about 100 times the diameter of the earth.

Let us compare the size of a Red Blood cell which is 0.000007 m to that of a plant cell which is 0.00001275 m.

Size of Red Blood cell = 0.000007 m = 7×10^{-6} m

Size of plant cell = 0.00001275 = 1.275×10^{-5} m

Therefore, $\frac{(7 \times 10^{-6})}{(1.275 \times 10^{-5})}$

$$= \frac{7}{1.275} \times 10^{-6+5}$$

$$= \frac{7 \times 10^{-1}}{1.275}$$

$$= \frac{0.7}{1.2} \approx \frac{1}{2}$$

So a red blood cell is half of plant cell in size.

[4]

(a) What is the standard form. of 0.000035?

a) 3.5×10^{-5}

b) 35×10^5

c) 3.5×10^{-4}

d) 3.5×10^5

(b) What is the usual form of 6.35×10^5 ?

a) 635000

b) 63500000

c) 635

d) 0.00635

(c) Size of a bacteria is 0.0000005 m. What is this size in the standard form?

a) $5 \times 10^{-6}m$

b) $5 \times 10^{-7}m$

c) 5×10^7m

d) 5×10^6m

(d) Sum of mass of earth and moon = $5.97 \times 10^{24} \text{ kg} + 7.35 \times 10^{22} \text{ kg} = \underline{\hspace{2cm}}$
 $\times 10^{22} \text{ kg}$