Question Paper FA-I 2016-2017
CBSE Class VIII
Mathematics (SET-A)

Indraprastha International School

General Instruction:

- This question paper contains 8 questions.
- Write answers neatly and legibly.
- All the questions are compulsory.
- Marks for each question are indicated against it.

1. a. The standard form of $\frac{36}{-108}$ is _____. (1)

b. I think of a number and subtract 5 from four times the number. The result is 3 more than twice the number that I thought of. The number is _____ .(1)

Sol. (a) $\frac{-1}{3}$

(b) 4

2. a. $(2^{-1} + 3^{-1} + 4^{-1} + 5^{-1})0$ = _____. (1)

b. Diameter of the sun is 14000×10^5m, the diameter in standard form is _____.(1)

Sol. (a) 1

(b) 1.4×10^9

3. Find the area of a rectangular board which is $3\frac{1}{8}$ m long and $1\frac{4}{9}$ m wide. (2)

Sol. Length of board $= \frac{25}{8} m$

Width of board $= \frac{13}{9} m$

4. By what number should $\left(\frac{-3}{2}\right)^{-1}$ be multiplied to get the product as $\frac{1}{6}$? (2)

Sol. Let $\left(\frac{-3}{2}\right)^{-1}$ be multiplied by x

$$\left(\frac{-3}{2}\right)^{-1} \times x = \frac{1}{6}$$

$$\frac{-2}{3} \times x = \frac{1}{6} \qquad \left[a^{-m} = \frac{1}{a^m}\right]$$

$$x = \frac{1}{6} \times \frac{3}{2} = \frac{-1}{4}$$

$\therefore \left(\frac{-3}{2}\right)^{-1}$ Should be multiplied by $\frac{-1}{4}$ to get $\frac{1}{6}$.

5. Find 6 rational numbers between $\frac{-3}{2}$ and $\frac{5}{3}$. (3)

Sol. $\frac{-3}{2} = \frac{-3 \times 3}{2 \times 3} = \frac{-9}{6}$

$$\frac{5}{3} = \frac{5 \times 2}{3 \times 2} = \frac{10}{6}$$

6 Rational numbers between -3 and 5 are $\frac{-8}{6}, \frac{-7}{6}, \ldots \frac{7}{6}, \frac{8}{6}, \frac{9}{6}$ (any 6) (3)

a. Solve for x : $3^{3x+3} = 9^{x+4}$.

b. Find the value of $\left(\frac{1}{3}\right)^3 \cdot \left(\frac{1}{3}\right)^7$.

Sol. (a) $3^{3x+3} = (3^2)^{x+4}$

$3^{3x+3} = 3^{2x+8}$

As bases are same equation powers

$3x + 3 = 2x + 8$

(b) $\left(\frac{1}{3}\right)^{3-7}$ $\quad [a^m \div a^n = a^{m-n}]$

$\left(\frac{1}{3}\right)^{-4} = (3)^4 = 81 \quad [a^{-m} = \frac{1}{a^m}]$

7. Reena wants to distribute chocolates on her birthday to children staying in an orphanage so that they also feel good. If the cost of a chocolate is `10 and there are 50 children, how much money would she need, if she gives 2 chocolates to each child? Explain any two values shown by her. (3)

Sol. Number of children = 50

Chocolate given to each children = 2

Total chocolate required = 100

Cost of 100 chocolates = 100 × 10 = Rs1000

Values: Any two

8. a. Find the value of x such that $(3^{-1} + 6^{-1} + 9^{-1} + 12^{-1})^x = \frac{36}{25}$ **(3)**

b. 1 micron is equal to $\frac{1}{1000000}$ **m. Express this statement in standard form.**

Sol. (a) $\left(\frac{1}{3}+\frac{1}{6}+\frac{1}{9}+\frac{1}{12}\right)^{x}=\frac{36}{25} \qquad \left(a^{-m}=\frac{1}{a^{m}}\right)$

$$\left(\frac{12+6+4+3}{36}\right)^{x}=\frac{36}{25}$$

$$\left(\frac{25}{36}\right)^{x}=\frac{36}{25}$$

$$\left(\frac{25}{36}\right)^{x}=\left(\frac{25}{36}\right)^{-1} \qquad \left(a^{m}=\frac{1}{a^{-m}}\right)$$

$$\therefore x=-1$$

(b) 10^{-6}