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

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. I think of a number and subtract $\frac{5}{2}$ from it. I multiply the result by 8 and the result I finally obtain is 3 times the same number I thought of. The number is _____. (1)

b. Multiplicative inverse of $\frac{-3}{5}$ is _____.(1)

Sol. (a) 4

(b) $\frac{-5}{3}$

2. a. $(-1)^{112} \times (-1)^{113}$ = _____. (1)

b. Usual form of 1.25×10^{-6} is _____.(1)

Sol. (a) -1

(b) 0.00000125

3. Product of two rational numbers is $\left(\frac{3}{52}\right)$. If one of them is $\frac{9}{13}$, find the other number. (2)

Sol. product of two rational numbers $= \frac{33}{52}$

One number $= \frac{9}{13}$

Second number = Product ÷ One number

$= \frac{33}{52} \times \frac{13}{9} = \frac{11}{12}$

$\therefore$ Second rational number $= \frac{11}{12}$

4. By what number should $\left(\frac{3}{5}\right)^{-2}$ be divided so that the quotient becomes 125? (2)

Sol. Let $\left(\frac{-3}{5}\right)^{-2}$ be divide by x

$\left(\frac{-3}{5}\right)^{-2} \div x = 125$

$\left(\frac{-3}{5}\right)^{-2} \times \frac{1}{x} = 125$

$\left(\frac{5}{3}\right)^{2} \times \frac{1}{x} = 125 \qquad \left(a^{-m} = \frac{1}{a^{m}}\right)$

$\frac{1}{x} = 125 \times \frac{9}{25}$

$\frac{1}{x} = 45$ or $x = \frac{1}{45}$

$\therefore \left(\frac{3}{5}\right)^{-2}$ should be divided by $\frac{1}{45}$

5. Find six rational numbers between $\frac{-2}{3}$ and $\frac{-1}{3}$. (3)

Sol. $\frac{-2\times10}{2\times10}=\frac{-20}{30}, \frac{-1\times10}{3\times10}=\frac{-10}{30}$

Six rational number between $\frac{-2}{3}$ and $\frac{-1}{3}$ are: $\frac{-19}{30}, \frac{-18}{30}, \ldots \frac{-19}{300}, \frac{-11}{30}$ (any six)

6. If $\left(\frac{3}{8}\right)^{-5}\times\left(\frac{16}{21}\right)^{-5}=\left(\frac{2}{7}\right)^{x}$, find x^3. (3)

Sol. $\left(\frac{3}{8}\right)^{-5}\times\left(\frac{16}{21}\right)^{-5}=\left(\frac{2}{7}\right)^{x}$

$\left(\frac{3}{8}\times\frac{16}{21}\right)^{-5}=\left(\frac{2}{7}\right)^{x} \qquad (a^m\times b^m=(a\times b)^m)$

$\left(\frac{2}{7}\right)^{-5}=\left(\frac{2}{7}\right)^{x} \quad \therefore x=-5$

$x^3=(-5)^3=-125$

7. A girl instead of distributing sweets on her birthday decides to distribute 320 apples in various organizations. Half the apples she distributed in an orphanage, three fourths of the remaining were distributed in a school for differently-abled and remaining apples were distributed to the poor children. Find the number of apples she distributed to the poor children. Explain any two values shown by her. (3 + 1)

Sol. Total apples = 320

Given to orphanage $=\frac{1}{2}\times320=160$

Given to school $= \frac{1}{2} \times \frac{3}{4} \times 320 = \frac{3}{8} \times 320 = 120$

320 = 160 + 120 + x

x = 40

She distributed 40 apples to the poor.

Value: Any two

8. a. Find the value of the variable: (3 + 1)

$$\left(\frac{-1}{2}\right)^{-7} \div \left(\frac{-1}{2}\right)^{8} = \left(\frac{-1}{2}\right)^{-4m+5}$$

b. The size of a plant cell is approximately 0.000013m. Convert the size in standard form.

Sol. (a) $\left(\frac{-1}{2}\right)^{-7} \div \left(\frac{-1}{2}\right)^{8} = \left(\frac{-1}{2}\right)^{-4m+5}$

$$\left(\frac{-1}{2}\right)^{-7-8} = \left(\frac{-1}{2}\right)^{-4m+5} \quad \left[a^m \div a^m = a^{m-n}\right]$$

$$\left(\frac{-1}{2}\right)^{-15} = \left(\frac{-1}{2}\right)^{-4m+5}$$

$$-4m + 5 = -15$$

$$-4m = -15 - 5$$

$$m = \frac{20}{4} = 5$$

(b) Size of cell = 1.3×10^{-5} m.