RATIONAL NUMBER

POWERS

EXERCISE

Q.1 Simplify each of the following :

(i) $\left[\left\{\left(\frac{-1}{5}\right)^{-2}\right\}^{2}\right]^{-1}$

(ii) $\left\{\left(\frac{1}{3}\right)^{-2}-\left(\frac{1}{2}\right)^{-3}\right\}\div\left(\frac{1}{4}\right)^{-2}$

Q.2 Simplify :

(i) $\left(\frac{5}{8}\right)^{-7}\times\left(\frac{8}{5}\right)^{-5}$ (ii) $\left(\frac{-2}{3}\right)^{-2}\times\left(\frac{4}{5}\right)^{-3}$

(iii) $\left(\frac{3}{4}\right)^{-4}\div\left(\frac{3}{2}\right)^{-3}$ (iv) $\left(\frac{3}{7}\right)^{-2}\times\left(\frac{7}{6}\right)^{-3}$

Q.3 Evaluate : $\frac{8^{-1}\times 5^{3}}{2^{-4}}$

Q.4 Simplify:

(i) $\frac{25\times a^{-4}}{5^{-3}\times 10\times a^{-8}}$ (ii) $\frac{3^{-5}\times 10^{-5}\times 125}{5^{-7}\times 6^{-5}}$

Q.5 By what number should $(-4)^{-2}$ be multiplied so that the product may be equal to 10^{-2} ?

Q.6 By what number should $(-12)^{-1}$ be divided so that the quotient may be $\left(\frac{2}{3}\right)^{-1}$?

Q.8 By what number should $\left(\frac{-3}{2}\right)^{-3}$ be divided so that the quotient may be $\left(\frac{4}{27}\right)^{-2}$?

Q.9 Find m so that $\left(\frac{2}{9}\right)^{3} \times \left(\frac{2}{9}\right)^{-6} = \left(\frac{2}{9}\right)^{2m-1}$

ANSWER KEY

1. (i) $\frac{1}{625}$; (ii) $\frac{1}{16}$

2. (i) $\frac{64}{25}$ (ii) $\frac{1125}{256}$ (iii) $\frac{32}{3}$ $\frac{24}{7}$

3. 250

4. (i) $\frac{625}{2}a^4$ (ii) 5^5

5. $\frac{4}{25}$

6. $\frac{-1}{18}$

7. $-2 \times \left(\frac{4}{27}\right)^{3}$

8. m = – 1