

Board – ICSE

Class – 8th

Topic – Exponents

1. Evaluate the exponent:

(i) 5^{-3}

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

(iii) $\left(\frac{5}{2}\right)^{-3}$

(iv) $(-2)^{-5}$

(v) $\left(-\frac{3}{4}\right)^{-4}$

2. Evaluate:

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

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

(iii) $\left\{\left[\frac{-3}{2}\right]^2\right\}^{-3}$

3. Simplify:

(i) $(2^{-1} \times 5^{-1})^{-1} \div 4^{-1}$

(ii) $(4^{-1} + 8^{-1}) \div \left(\frac{2}{3}\right)^{-1}$

4. Simplify:

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

5. By what number should $\left(\frac{1}{2}\right)^{-1}$ be multiplied so that the product is $\left(-\frac{5}{4}\right)^{-1}$?

6. By what number should $\left(-\frac{3}{2}\right)^{-3}$ be divided so that the quotient is $\left(\frac{9}{4}\right)^{-2}$?

7. If $a = \left(\frac{2}{5}\right)^2 \div \left(\frac{9}{5}\right)^0$ find the value of a^{-3} .

8. Find the value of n , when $3^{-7} \times 3^{2n+3} = 3^{11} \div 3^5$
9. Find the value of n , when $\left(\frac{5}{3}\right)^{2n+1} \left(\frac{5}{3}\right)^5 = \left(\frac{5}{3}\right)^{n+2}$
10. Find the value of n , when $3^n = 243$

ANSWER

1. (i) $\frac{1}{125}$
(ii) 81
(iii) $\frac{8}{125}$
(iv) $-\frac{1}{32}$
(v) $\frac{256}{81}$
2. (i) $\frac{1225}{16}$
(ii) -1024
(iii) $\frac{64}{729}$
3. (i) 40
(ii) $\frac{1}{4}$
4. 29
5. $-\frac{2}{5}$
6. $-\frac{3}{2}$
7. $\left(\frac{5}{2}\right)^6$
8. $n = 5$
9. $n = -4$
10. $n = 5$