6

Exponents

Q1. Choose the correct exponential notation for the following products:

a. $2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5 \times 5$

i. $2^4 \times 5^4$

ii. $4^2 \times 4^5$

iii. $2^4 \times 5^5$

iv. $4^2 \times 5^5$

b. $14 \times 14 \times 14 \times 14 \times 14 \times 9 \times 9$

i. $14^2 \times 9^5$

ii. $9^2 \times 14^5$

iii. $2^{14} \times 5^9$

iv. $2^9 \times 5^{14}$

Q2. Simplify and express the result in exponential form:

a. $\dfrac{7^4 \times 5^3 \times 11^2}{11 \times 7^2 \times 5^3}$

Answer: _____

b. $\{(3^3)^2 \times 5^4\} \div (5^2 \times 3^3)$

Answer: _____

Q3. Express the following numbers in scientific notation.

a. 7.2 lakh = _____

b. 34 million = _____

Q4. Express each of the following in exponential form:

a. $-\dfrac{32}{243} = \dfrac{\square}{\square}$

b. $-\dfrac{216}{243} = \dfrac{\square}{\square}$

Q5. If a = 2, m = 5, n = 3, prove:

$a^m \div a^n = a^{m-n}$

Q6. Find the value of *x* in the following:

a. $2^x \times 3^2 = 9$

$x =$ _____

b. $10^x \times 5^2 = 2.5 \times 10^3$

$x =$ _____

Q7. Find the least number by which 550 should be multiplied to make it a perfect square.

Answer: _____

Q8. Find the smallest number by which 784 should be multiplied to make it a perfect cube.

Answer: _____

Q9. Find the cube of each of the following:

a. –4 : _____

b. 0.2 : _____

Q10. Find whether evaluating the following expressions will result in a positive or negative integer:

	Expression		Positive/Negative
a.	$(-2)^{11}$	:	_____
b.	$(5)^{10}$	:	_____
c.	$(-6)^{33}$	:	_____
d.	$(-7)^{200}$	:	_____

Answers

1. a. (iii); b. (ii)

2. a. $7^2 \times 11$; b. $5^2 \times 3^3$

3. a. 7.2×10^5; b. 3.4×10^7

4. a. $\left(-\frac{2}{3}\right)^5$; b. $\left(-\frac{6}{7}\right)^3$

5. LHS $= 2^5 \div 2^3 = 32 \div 8 = 4$

RHS $= 2^{5-3} = 2^2 = 4$

$\therefore$ LHS = RHS

6. a. x=0; b. x=2

7. 22

8. 28

9. a. –64; b. 0.008

10. a. Negative; b. Positive; c. Negative; d. Positive