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SUBJECT: MATHEMATICS
Chapter – 1

CLASS 9th
TOPIC: NUMBER SYSTEM

Worksheet - 2

Q 1 Evaluate the following expressions:

(a) $\left(\frac{256}{6561}\right)^{\frac{3}{8}}$

(b) $(15625)^{\frac{1}{6}}$

(c) $\left(\frac{343}{1331}\right)^{\frac{1}{3}}$

(d) $\sqrt[8]{\frac{6561}{65536}}$

Q. 2 Simplify :

$$\frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}}$$

ANSWERS

Q.1 (a) , (b), (c)

(1) $\left(\frac{256}{6561}\right)^{3/8}$	(2) $(15625)^{1/6}$	(3) $\left(\frac{343}{1331}\right)^{1/3}$
$= \left(\frac{2^8}{3^8}\right)^{3/8}$	$= (5^6)^{1/6}$	$= \left(\frac{7^3}{11^3}\right)^{1/3}$
$= \frac{2^{8 \times 3/8}}{3^{8 \times 3/8}}$	$= 5^{6 \times 1/6}$	$= \frac{7^{3 \times 1/3}}{11^{3 \times 1/3}}$
$= \frac{2^3}{3^3}$	$= 5^1$	$= \frac{7^1}{11^1}$
$= \frac{8}{27}$	$= 5$	$= \frac{7}{11}$

Q.1 (d)

$$\begin{aligned}
 & \sqrt[8]{\frac{6561}{65536}} \\
 &= \left(\frac{6561}{65536}\right)^{1/8} \\
 &= \left(\frac{3^8}{2^{16}}\right)^{1/8} \\
 &= \frac{3^{8 \times 1/8}}{2^{16 \times 1/8}} \\
 &= \frac{3^1}{2^2} \\
 &= \frac{3}{4}
 \end{aligned}$$

Q.2

$$\begin{aligned} & \frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}} \\ &= \frac{\sqrt{16 \times 2} + \sqrt{16 \times 3}}{\sqrt{4 \times 2} + \sqrt{4 \times 3}} \\ &= \frac{\sqrt{16} \times \sqrt{2} + \sqrt{16} \times \sqrt{3}}{\sqrt{4} \times \sqrt{2} + \sqrt{4} \times \sqrt{3}} \\ &= \frac{4\sqrt{2} + 4\sqrt{3}}{2\sqrt{2} + 2\sqrt{3}} \\ &= \frac{4(\sqrt{2} + \sqrt{3})}{2(\sqrt{2} + \sqrt{3})} \\ &= \underline{2} \end{aligned}$$