

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2024-25

CLASS: 7 / SUBJECT: Maths

LESSON : 13 Exponents and Powers

1. Find the values of each of the following:

a) 13^2 b) 7^3 c) (-3^4) d) $(-5)^5$ (ans: 169,343,81,-3125)

2. What power of 2 is 64? (ans: 6)

3. Simplify:

a) 3×10^2 (ans:300)

b) $2^2 \times 5^3$ (ans:500)

c) $3^3 \times 5^2$ (ans:675)

d) $(-2) \times (-3)^3$ (ans: 54)

e) $\left(\frac{2}{7}\right)^3$ (ans:8/343)

f) $\left(\frac{-1}{3}\right)^4$ (ans: 1/81)

g) $\left(\frac{p}{q}\right)^k$ where $k=2$ (ans: p^2/q^2)

4. Express each of the following as product of powers of their prime factors:

a) 36 b) 675 c) 24×35

[ans: a) $2^2 \times 3^2$ b) $3^3 \times 5^2$ c) $2^3 \times 3 \times 7 \times 5$]

5. Express *in* exponential form:

a) 512

b) $X \times X \times X \times X \times a \times a \times b \times b \times b$

c) $(-2) \times (-2) \times (-2) \times (-2) \times a \times a \times a$

d) $(-2/3) \times (-2/3) \times X \times X \times X$

[ans: a) 2^9 b) $X^4 \times a^2 \times b^3$ c) $(-2)^4 \times a^3$ d) $(-2/3)^2 \times X^3$]

6. Simplify the following:

a) $2^2 \times 2^3 \times 2^1$

b) $\left(\frac{2}{5}\right)^{10} \div \left(\frac{2}{5}\right)^{7+3}$

c) $\frac{3^5 \times 10^5 \times 25}{5^7 \times 6^5}$

d) $(3^2)^5 \div 3^4$

e) $\frac{(-5)^0 - (-3)^0}{\left(\frac{1}{2}\right)^0}$

f) $\frac{32 \times 125}{5 \times 8}$

g) $\frac{(5^{21} \div 5^{13})}{5^2 \times 5^3}$

[ans: a) 64 b) 1 c) 1 d) 729 e) 0 f) 100 g) 125]

7. Simplify and express each of the following in exponential form:

a) $\{(2^3)^4 \times 2^8\} \div 2^{12}$ [ans: 2^8]

b) $(8^2 \times 8^4) \div 8^3$ [ans: 2^9]

c) $(5^7/5^2) \times 5^3$ [ans: 5^8]

8. Write the following numbers in the expanded form

a) 27349

b) 780356

c) 35798509

d) 765900234

9. Express each of the following numbers in the standard form:

a) 2,570,000

b) 8,20,00,00,00

c) 429.180

d) 398006.500

e) 723×10^9

f) 846×10^7

[ans: a) 2.5×10^6 b) 8.2×10^9 c) 4.29180×10^2

d) 3.98006500×10^5 e) 7.23×10^{11} f) 8.46×10^9]
