

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2025-26

CLASS: VIII

SUBJECT: MATHEMATICS

DATE: 20-12-2025

Lesson 10: EXPONENTS & POWERS

1. Find the value of each of the following:
a) 13^2 b) 5^3 c) 2^4 d) 11^2
e) $(-3)^3$ f) $(-1)^6$ g) $(-3/5)^2$
2. Simplify:
a) 3×10^2 b) $2^5 \times 5^3$ c) 0×10^4 d) $(3/4)^3$
e) $(-2/3)^4$
3. Express each of the following in exponential form:
a) $(-5/7) \times (-5/7) \times (-5/7) \times (-5/7)$
b) $-5 \times -5 \times -5$
c) $x \times x \times x \times x \times x \times x \times x \times x \times a \times a \times a \times b \times b \times b$
d) $(-2) \times (-2) \times (-2) \times (-2) \times a \times a \times a \times a$
4. Express each number as a product of powers of its prime factors:
a) 36 b) 675 c) 392 d) 864
e) 450 f) 1800
5. Using laws of exponents, simplify:
a) $3^6 \times 3^5$ b) $(7^2)^3 \div 7^3$ c) $2^{20} \div 2^5$
d) $2^4 \times 5^4$ e) $(2^0 + 3^0)(4^0 + 6^0)$ f) $\frac{7^3}{5^3}$
6. Write the numbers in expanded form:
a) 20068 b) 423719 c) 680071 d) 5004132
7. Find the number:
a) $5 \times 10^5 + 4 \times 10^4 + 2 \times 10^3 + 3 \times 10^0$
b) $9 \times 10^6 + 8 \times 10^4 + 7 \times 10^2 + 6 \times 10^0$
c) $3 \times 10^4 + 4 \times 10^3 + 5 \times 10^0$
8. Express in standard form:
a) 3,18,65,00,000 b) 786.3×10^4 c) 5,00,00,000
d) 42634.7 e) 4786.3460
9. Write the numbers in the usual form:
a) 4.83×10^7 b) 3.64×10^5 c) 7.3×10^3
10. Find the value of unknowns:
a) $(-2)^m \times (-2)^6 = (-2)^9$

$$b) \left(\frac{3}{2}\right)^{-3} \times \left(\frac{3}{2}\right)^6 = \left(\frac{3}{2}\right)^{2 \times +1}$$

11. Simplify each of the following:

$$a) \frac{2^{15}}{2^3 \times 2^7}$$

$$b) (3^3 \times 3^2)^2$$

$$c) \frac{5^4 \times x^{10} y^5}{5^4 \times y^4 x^7}$$

$$d) \left(\frac{2}{3}\right)^5 \times \left(\frac{3}{5}\right)^5$$

$$e) \frac{9^8 \times (x^2)^5}{(x^3)^2 \times (27)^4}$$

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

Answers:

1. a) 169 b) 125 c) 16 d) 121 e) -27 f) 1 g) 9/25

2. a) 300 b) 4000 c) 0 d) 27/64 e) 16/81

3. a) $(-5/7)^4$ b) $(-5)^3$ c) $x^6 a^3 b^3$ d) $(-2)^4 a^4$

4. a) $2^2 \times 3^2$ b) $3^3 \times 5^2$ c) $2^3 \times 7^2$ d) $2^5 \times 3^3$ e) $2 \times 3^2 \times 5^2$
f) $2^3 \times 3^2 \times 5^2$

5. (a) 3^{11} b) 7^3 c) 2^{15} d) 10000
e) 4 f) $(7/5)^3$

6. a) $2 \times 10^4 + 6 \times 10^1 + 8 \times 10^0$
b) $4 \times 10^5 + 2 \times 10^4 + 3 \times 10^3 + 7 \times 10^2 + 1 \times 10^1 + 9 \times 10^0$
c) $6 \times 10^5 + 8 \times 10^4 + 7 \times 10^1 + 1 \times 10^0$
d) $5 \times 10^6 + 4 \times 10^3 + 1 \times 10^2 + 3 \times 10^1 + 2 \times 10^0$

7. a) 542003 b) 9080706 c) 34005

8. a) 3.1865×10^9 b) 7.863×10^6 c) 5×10^7
d) 4.26347×10^4 e) 4.786346×10^3

9. a) 48300000 b) 364000 c) 7300

10. a) 3 b) 1

11. a) 32 b) 59049 c) $x^3 y$
d) $\frac{32}{312}$ e) $81x^4$ f) 256
