

INDIAN SCHOOL AL WADI AL KABIR

Class VIII, Mathematics

WORKSHEET (2026-27)

POWER PLAY

DESCRIPTIVE TYPE QUESTIONS

Q.1

Express in standard form.

(a) 51860000000 (b) 591700000

Q.2

If $5^x = 25$ and $3^y = 9^2$, find the value of $2x + y$.

Q.3

Simplify: $\{2^5 \times 2^7\} \div \{2^3 \times 2^{-2}\}$

Q.4

Simplify: $\{6^{-1} + (\frac{3}{2})^{-1}\}^{-1}$

Q.5

(a) Write in exponential form of $2^{-5} \times 2^3 \times 2^6$

(b) Express 1024 as a power 2.

Q.6

Simplify: (a) $\{(2)^{-2} \times (2)^5\} \div 2$

(b) $\left[\frac{(8^0 + 7^0) \times (5^0 + 9^0)}{(13^0 \times 3^0)}\right]^2 + 2^2$

Q.7

Find the missing value of "x" in the following expression:

$(-5)^{x+1} \times (-5)^5 = (-5)^7$

Q.8

Simplify

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

Q.9

Find the multiplicative inverse of the following:

(a) $(\frac{17}{11})^{-14}$

(b) $(23)^{-5}$

Q.10

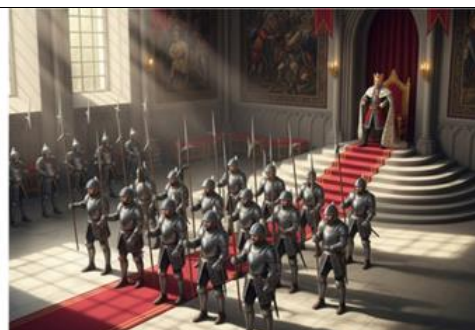
Find the value of y if $(\frac{7}{11})^{2y+1} \div (\frac{7}{11})^2 = (\frac{7}{11})^9$

Q.11.

Write the expanded form of (1) 3452.075 (2) 587.214

Q.12

Case Study: The King's Guard in a kingdom is deployed in a special formation. The number of guards in each row is determined by a power of 2. In the first row, there are 2 guards. In the second row, there are 4, in the third, there are 8, and so on. The king needs to know the total number of guards for different formations.



- (i) How many guards will be in the 6th row?
- (ii) If a new formation requires 2^{10} guards in a single row, which row number is this?
- (iii) The number of guards in a different formation doubles every 2 days, starting with 4 guards. How many guards will there be after 6 days?
- (iv) What is the ratio of the number of guards in the 8th row to the number of guards in the 4th row?

ANSWERS

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Q1	a) 5.186×10^{10} b) 5.917×10^8	Q2	8	Q3	2^{11}		Q4	$\frac{6}{5}$
Q5	a) 2^4 b) 2^{10}	Q6	a) 4 b) 20	Q7	x=1	Q8. 27	Q9	a) $(\frac{17}{11})^{14}$ b) 23^5
Q10	y=5	Q11	(1)	(2) $3 \times 10^3 + 4 \times 10^2 + 5 \times 10^1 + 2 \times 10^0 + 7 \times 10^{-2} + 5 \times 10^{-3}$ (2) $5 \times 10^2 + 8 \times 10^1 + 7 \times 10^0 + 2 \times 10^{-1} + 1 \times 10^{-2} + 4 \times 10^{-3}$				
Q12	1. $2^6 = 64$ $2.2^n = 2^{10}$. 3.Starting with 4 guards (2^2), the number of guards will be $2^2 \times 2^3 = 2^5 = 32$ guard 4.Ratio = $2^8 / 2^4 = 2^{8-4} = 2^4$							