



INDIAN SCHOOL AL WADI AL KABIR

Class VIII, Mathematics (2024-25)

Worksheet DTQ – EXPONENTS AND POWERS

SHORT ANSWER TYPE QUESTIONS- 7 QUESTIONS. (2 Marks each)

Q1. Find the multiplicative inverse of the following:

(a) $\left(\frac{17}{11}\right)^{-14}$ (b) $(23)^{-5}$

Q2. Find the value of:

a) $2^3 \times 2^{-2}$ b) $4^{\frac{1}{2}} \times 9^{\frac{1}{2}}$

Q3. Evaluate:

a) $(4^{-1} \times 3^{-1})^{-1} \div 5^{-1}$

b) $\left[\left\{\left(\frac{4}{9}\right)^2\right\}^0\right]^{\frac{-1}{2}}$

Q4. Evaluate $\left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{5}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$

Q5. Express in standard form:

a) 0.000038

b) 9050000

Q6. If $\left(\frac{3}{4}\right)^5 \times \left(\frac{3}{4}\right)^2 = \left(\frac{3}{4}\right)^{2x-1}$, then find the value of x .

Q7. Write the following numbers in usual form:

a) 7×10^{-5}

b) 6.058×10^5

Q8. Simplify: $\frac{7^{-3} \times p^{-5} \times q^{-4}}{7^{-5} \times p^{-8} \times q^3}$ ($a, b \neq 0$)

SHORT ANSWER TYPE- 5 QUESTIONS. (3 Marks each)

Q9. a) Simplify: $\{2^5 \times 2^7\} \div \{2^3 \times 2^{-2}\}$

b) Find the value of x , if $\left(\frac{11}{9}\right)^3 \div \left(\frac{9}{11}\right)^6 = \left(\frac{11}{9}\right)^{2x-1}$

Q10. Simplify: $\frac{9^{-5} \times 81 \times 5^2}{3^{-7} \times 10^2}$

Q11.	Simplify $\left[\left(\frac{2}{7}\right)^{-2}\right]^4 \times \left[\left(\frac{7}{2}\right)^4\right]^{-2}$										
Q12.	Find the value: $(3^2)^3 + \left(\frac{2}{3}\right)^0 + 3^5 \times \left(\frac{1}{3}\right)^4$										
LONG ANSWER TYPE- 3 QUESTIONS. (4 Marks each)											
Q13.	Find the value of $\frac{(2^{-3})^{-2} \times 3^4}{3^2 \times (2^{-2})^{-2}}$										
Q14.	Find the value of m if $\frac{25^{2m} \times 5^5 \times (125)^{\frac{1}{3}}}{5 \times 625^2} = 125$ (CBQ)										
Q15.	<p>a) Mass of Earth is 59.7×10^{23}kg and mass of Moon is 735×10^{20}kg. Write both of them in standard form. Which has greater mass Earth or Moon? (CBQ)</p> <p>b) Match the following:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Column A</th> <th>Column B</th> </tr> </thead> <tbody> <tr> <td>i) $2^3 \times 2^{-2} \times 3^2$</td> <td>16</td> </tr> <tr> <td>ii) $5^{-2} \times 5^4$</td> <td>18</td> </tr> <tr> <td>iii) $3^2 \div 3^{-1}$</td> <td>25</td> </tr> <tr> <td>iv) $\left(\frac{1}{5}\right)^{-2} \div \left(\frac{4}{5}\right)^{-2}$</td> <td>27</td> </tr> </tbody> </table>	Column A	Column B	i) $2^3 \times 2^{-2} \times 3^2$	16	ii) $5^{-2} \times 5^4$	18	iii) $3^2 \div 3^{-1}$	25	iv) $\left(\frac{1}{5}\right)^{-2} \div \left(\frac{4}{5}\right)^{-2}$	27
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ANSWERS					
Q1.	$\left(\frac{17}{11}\right)^{14}, (23)^5$	Q2.	a) 2 b) 6	Q3.	a) 60 b) 1
Q4.	50	Q5.	a) 3.8×10^{-5} b) 9.05×10^6	Q6.	4
Q7.	a) 0.00007 b) 605800	Q8.	$\frac{49p^3}{q^7}$	Q9.	a) 2^{11} b) 5
Q10.	$\frac{3}{4}$	Q11.	1	Q12.	733
Q13.	36	Q14.	$\frac{3}{2}$	Q15.	a) Earth b) 18, 25, 27, 16