CBSE Worksheet-1

CLASS –VII Mathematics (Exponents and Powers)

Choose correct option in questions 1 to 4.

1. Find the value of $(-9)^3 \times (-4)^2$.
   a) -11664 b) 36
   c) 5 d) 25
2. Simplify: $7^x \times 7^2$
   a) 7^{x+3} b) 7^{x+2}
   c) 7^{2x} d) 7^{x-2}
3. Which is greatest among the following?
   a) 8^2 b) 4^3
   c) 2^8 d) 3^2
4. Find the value of $(6^0 - 2^0) \times (6^0 + 2^0)$.
   a) 2 b) 1
   c)3 d) 0
5. In $(-9)^4$, the base is _____ and the exponent is 4.
6. $(-1)^4$ is equal to ____.
7. $(a^x)^y$ = _____
8. What should be added to $2y^2 - 4yz - 2z^2$ to get $y^2 - 2yz - z^2$.
9. Express the following numbers in the standard form.
   a) 5,223,000,000
   b) 256,000,000
10. Simplify and write the answer in exponentialform.
    a) $3^7 \div 3^4$
    b) $5^8 \div 5^4$
11. Find m when $\left(\frac{2}{9}\right)^3 \times \left(\frac{2}{9}\right)^{-6} = \left(\frac{2}{9}\right)^{2m-1}$

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Answer key

1. a
2. b ; { 7^x x 7^2 = 7^{x+2} (when bases are same and there is a sign of multiplication in between then the exponents get added) }
3. c ; { 8^2 = 64 , 4^3 = 64, 2^8 = 256, 3^2 = 9 }
4. a; { $(6^0 - 2^0) \times (6^0 + 2^0)$ = (1 - 1) x (1 + 1) = (0) x (2) = 0 (any base number with exponent 0 is equal to 1) }
5. -9
6. 1
7. a^{xy} ; { in this case exponents will get multiplied }
8. $(y^2 - 2yz - z^2) - (2y^2 - 4yz - 2z^2)$

   = $y^2 - 2yz - z^2 - 2y^2 + 4yz + 2z^2$

   = $- y^2 + 2yz + z^2$
9. a. 5.223 x 10^9

   b) 2.56 x 10^8
10. a) 3^3 ; { 3^{7-4} when the bases are same and there is a sign of division in between then the exonents get subtracted }

    b) 5^4 ;{ 5^{8-4} when the bases are same and there is a sign of division in between then the exonents get subtracted }
11. $\left(\frac{2}{9}\right)^{3+(-6)} = \left(\frac{2}{9}\right)^{2m-1}$

    $= \left(\frac{2}{9}\right)^{-3} = \left(\frac{2}{9}\right)^{2m-1}$

    $\Rightarrow$ 2m - 1 = -3

    2m = -3 + 1

    2m = -2

    $m = \frac{-2}{2}$

    m = -1