Exponent class7 worksheet/Assignment and Test paper Jsunil Tutorial

Simplify:

1. $\left\{\left(-\frac{3}{2}\right)^2\right\}^{-3}$
2. $\left[\left\{\left(-\frac{1}{3}\right)^2\right\}^{-2}\right]^{-1}$
3. $(6^{-1}-8^{-1})^{-1}+(2^{-1}-3^{-1})^{-1}$
4. $\left\{6^{-1}+\left(\frac{3}{2}\right)^{-1}\right\}^{-1}$
5. $(2^{-1}+5^{-1})^2 \times \left(-\frac{5}{8}\right)^{-1}$

Rules for Integral Exponents

1. $a^{-n}=\frac{1}{n}$ $Defination\ of\ negative\ exponant$
2. $\frac{1}{a}=a^{-1}\ and\ \frac{1}{a^{-n}}=a^n$ Negative exponent rule
3. $a^0 = 1$ Definition of Zero exponent
4. $a^m \times a^n = a^{m+n}$ Product Rule
5. $a^m \div a^n = a^{m-n}$ Quotient Rule
6. $(a^m)^n = a^{mn}$ Power of power Rule
7. $(a \times b)^m = a^m x\, b^m$ Power of Product Rule
8. $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$ Power of Quotient Rule

6. By what number should we multiply 3^{-9} so that the product is equal to 3?
7. By what number should we multiply -8^{-1} so that the product is equal to 10^{-1} ?
8. By what number should -15^{-1} be divided so that the quotient is $(-5)^{-1}$
9. Evaluate: $(i)\ 5^0 \quad (ii)(-6^0)\ (iiii)\ (3^0+2^0)\ (iv)(6^0 \times 7^0)\ (v)(5^0 \times 3^0)$
10. $simplify:\ \frac{10\times 5^{n+1}+25\times 5^n}{3\times 5^{n+2}+10\times 5^{n+1}}$

11. if $9 \times 3^n = 3^6\ find\ value\ of\ n$
12. $if\ 25^{n-1}+100=5^{2n-1}, find\ value\ of\ n$
13. $if\ \frac{9^n\times 3^2\times 3^n-(27)^n}{(3^3)^5\times\times 2^3}=\frac{1}{27}$, $Find\ value\ of\ n.$
14. Find value of x such that $\left(\frac{3}{5}\right)^3 \times \left(\frac{3}{5}\right)^{-6} = \left(\frac{3}{5}\right)^{2x-1}$
15. Simplify: (i) $\frac{3^5\times 10^5\times 25}{5^7\times 6^5}$ $(ii)\ \frac{16\times 2^{n+1}-4\times 2^n}{16\times 2^{n+2}-2\times 2^{n+2}}$
16. Find value of n: $(i)5^{2n}\times 5^3=5^0\ (ii)8\times 2^{n+2}\ (iii)6^{2n+1}\div 36=6^3\ (iv)2^{n-7}\times 5^{n-4}=1250$
17. By what number should we multiply -5^{-1} so that the product is equal to 8^{-1} ?
18. By what number should $(-30)^{-1}$ be divided so that the quotient is $(6)^{-1}$
19. Simplify: $(i)\left[\left\{-\frac{1}{4}\right)^{-2}\right\}-1\ (ii)\left\{\left(-\frac{2}{3}\right)^2\right\}^3$
20. Simplify using formula:

$(i)\left(\frac{4}{9}\right)^6\times\left(\frac{4}{9}\right)^{-4}\ (ii)\left(-\frac{7}{8}\right)^{-3}\times\left(-\frac{7}{8}\right)^2\ (iii)\left(-\frac{2}{3}\right)^3\div\left(-\frac{2}{3}\right)^6\ (iv)\left(-\frac{2}{3}\right)^7\div\left(-\frac{2}{3}\right)^4\ (v)\left(\frac{5}{3}\right)^{-3}\times\left(\frac{5}{3}\right)^{-2}$

21. Express in power notation: $(i)\frac{25}{36}\ (ii)-\frac{27}{64}\ (iii)-\frac{32}{243}\ (iv)-\frac{1}{128}$
22. Express as rational number: $(i)\left(\frac{2}{3}\right)^5\ (ii)\left(-\frac{8}{5}\right)^3\ (iii)\left(-\frac{13}{11}\right)^2\ (iv)\left(\frac{1}{6}\right)^3\ (v)(-1)^{-9}(vi)\ (-1)^0\ (vii)\left(\frac{1}{3}\right)^{-1}$
23. Simplify without using formula:

$(i)\left(\frac{3}{2}\right)^4\times\left(\frac{1}{5}\right)^2\ (ii)\left(-\frac{1}{2}\right)^5\times 3^3\times\left(\frac{3}{4}\right)^2\ (iii)\left(\frac{2}{3}\right)^2\times\left(-\frac{3}{5}\right)^3\times\left(\frac{7}{2}\right)^2\ (iv)\left\{\left(-\frac{3}{4}\right)^3-\left(-\frac{5}{2}\right)^3\right\}\times 4^2$

24. Express as rational number: $(i)\left(\frac{1}{4}\right)^{-4}\ (ii)(-2)^{-5}\ (iii)(-3)^{-1}\times\left(\frac{1}{3}\right)^{-1}\ (iv)(5^{-1}-7^{-1})^{-1}\ (v)\left\{\left(\frac{3}{2}\right)\div\left(-\frac{2}{5}\right)^{-1}\right\}$