

Class: Ten

Subject- Mathematics

Source: Photos of exercise are given below.

Work: complete all the work from given pages.

Do your work neatly

8. Simplify.

a) $\frac{1}{1+x^{a-b}+x^{c-b}} + \frac{1}{1+x^{b-c}+x^{a-c}} + \frac{1}{1+x^{c-a}+x^{b-a}}$

b) $\frac{1}{1+a^{x-y}+a^{x-z}} + \frac{1}{1+a^{y-x}+a^{y-z}} + \frac{1}{1+a^{z-x}+a^{z-y}}$

9. a) If $x^3 + y^3 + z^3 = 1$, show that, $\left(\frac{a^x}{a^y}\right)^{x^2-xy+y^2} \cdot \left(\frac{a^y}{a^z}\right)^{y^2-yz+z^2} \cdot \left(\frac{a^z}{a^x}\right)^{z^2-zx+x^2} = a^3$

b) If $x^2 + y^2 + z^2 = xy + yz + zx$, show that $\left(\frac{a^x}{a^y}\right)^{x-y} \cdot \left(\frac{a^y}{a^z}\right)^{y-z} \cdot \left(\frac{a^z}{a^x}\right)^{z-x} = 1$

c) If $pqr = 1$, show that $\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}} = 1$.

d) If $abc + 1 = 0$, prove that $\frac{1}{1-a-b^{-1}} + \frac{1}{1-b-c^{-1}} + \frac{1}{1-c-a^{-1}} = 1$

e) If $x^2 + 2 = 2^{\frac{2}{3}} + 2^{\frac{2}{3}}$, show that $2x(x^2 + 3) = 3$

f) If $x = 3^{\frac{1}{3}} + 3^{\frac{2}{3}}$, prove that $x^3 - 9x - 12 = 0$

g) If $a + b + c = 0$, show that $\frac{1}{1+x^a+x^b} + \frac{1}{1+x^b+x^c} + \frac{1}{1+x^c+x^a} = 1$

10.3 Exponential equation

Let's take an equation $2x = 8$. In this equation, the unknown variable 'x' is and 2 is its coefficient.

Now, take another equation $2^x = 8$. In this case, the unknown variable is an exponent of the base 2. Such an equation in which the unknown variable is an exponent of a base is known as **exponential equation**. The following are useful while solving the exponential equations:

(i) If $a^x = a^b$, then $x = b$

(ii) If $a^x = 1$, then $a^x = a^0$ and $x = 0$

Thus, while solving an exponential equation, we show that the equation will be obtained in the forms $a^x = a^b$ or $a^x = 1$.

Subject- HPE

1. Answer question D (Long Answer Questions) of Unit 2, page 80. (Readmore Publication)

Subject- Science

1. What happens in the reactivity in the group of noble gas from top to bottom and why?
2. What do you mean by reactant and product of a chemical reaction?
3. Write the chemical equation of the reaction between very active metal and very active non-metal. What type of chemical reaction is it? Write with reason.
4. What do you mean by d-block elements? Write two differences between s-block and p-block elements.

विषय - नेपाली

१) हाम्रो संस्कृति निबन्ध पढ्नुहोस् र हाम्रो संस्कृति शीर्षकमा १५० शब्द सम्मको एक अनुच्छेद लेख्नुहोस्।

२) शब्दवर्ग पुनरावृत्ति अभ्यास गर्नुहोस्।

The End.