

Tender Heart High School, Sec.-33B chd.

Class : VIII

Subject : Mathematics

Topic : Chapter 2 : Exponents

Teacher :

Deepa

Last week we have done the basic concepts of the chapter, now in this week we will do the questions of the Exercise - 2A

Exercise - 2B

Soln-6) Prove that $\frac{x^{m+n} \times x^{n+1} \times x^{1+m}}{(x^m \times x^n \times x^1)^2} = 1$

$$\begin{aligned} \text{L.H.S} &= \frac{x^{m+n+n+1+1+m}}{(x^{m+n+1})^2} = \frac{x^{2m+2n+2}}{x^{2m+2n+2}} \\ &= \frac{x^{2m+2n+2-2m-2n-2}}{x^{2m+2n+2-2m-2n-2}} = x^0 = 1 = \text{R.H.S} \end{aligned}$$

Hence verified

Soln-10 (ii) $\frac{1}{1+x^{a-b}} + \frac{1}{1+x^{b-a}}$

$$= \frac{1}{1+\frac{x^a}{x^b}} + \frac{1}{1+\frac{x^b}{x^a}}$$

$$= \frac{\frac{x^b + x^a}{x^b}}{x^b} + \frac{\frac{x^a + x^b}{x^a}}{x^a}$$

$$= \frac{x^b}{x^b + x^a} + \frac{x^a}{x^a + x^b}$$

$$= \frac{x^a + x^b}{x^a + x^b}$$

$$= 1$$

$$\text{L.C.M} = x^a + x^b$$

Soln-13: $\frac{a^{7+2n} \times (a^2)^{3n+2}}{(a^4)^{2n+3}} = ?$

class: VIII

sub: Mathematics

topic: Chapter-2

classmate

Date _____

Page _____

Teacher Deepa Ti-

$$= \frac{a^{7+2n} \times a^{6n+4}}{a^{8n+12}} = a^{7+2n+6n+4-8n-12}$$
$$= a^{11-12+8n-8n} = a^{-1} = \frac{1}{a}$$

Soln-15 (i) $\left(\frac{-3}{11}\right)^{x+5} \div \left(\frac{-3}{11}\right)^{-2x+3} = \left(\frac{-3}{11}\right)^{2x-5} \times \left[\left(\frac{-3}{11}\right)^{-2}\right]^{(x+4)}$

$$\Rightarrow \left(\frac{-3}{11}\right)^{x+5-2x+3} = \left(\frac{-3}{11}\right)^{2x-5-2x-8}$$

$$\left(\frac{-3}{11}\right)^{-x+8} = \left(\frac{-3}{11}\right)^{-13}$$

If the bases are equal, then the power are also equal.

$$\Rightarrow -x+8 = -13$$

$$-x = -13-8$$

$$-x = -21$$

$$\boxed{x = 21}$$

(ii) $\left(\frac{2}{5}\right)^{2 \times 4 \times (x+2)} = \left(\frac{2}{5}\right)^{-2 \times (x-1) \times (-3)}$

$$\left(\frac{2}{5}\right)^{8(x+2)} = \left(\frac{2}{5}\right)^{6(x-1)}$$

$$\left(\frac{2}{5}\right)^{8x+16} = \left(\frac{2}{5}\right)^{6x-6}$$

$$\Rightarrow 8x+16 = 6x-6$$

Class: VIII

Subject: Mathematics

Topic: Chapter-2

classmate

Date _____

Page _____

Teacher: Deepthi

$$\Rightarrow 8x - 6x = -16 - 6$$

$$2x = -22$$

$$\boxed{x = -11}$$

Now from Exercise - 2B, do only
Q-3, Q-5, Q-7, Q8, Q-9, Q-11,
Q-12, Q13, Q-14

————— x ————— x —————