

ਵਾਸਤਵਿਕ ਸੰਖਿਆਵਾਂ ਲਈ ਘਾਤ ਅੰਕ ਨਿਯਮ

ਮੰਨ ਲਓ $a > 0$ ਇੱਕ ਵਾਸਤਵਿਕ ਸੰਖਿਆ ਹੈ ਅਤੇ p, q ਪਰਿਮੇਯ ਸੰਖਿਆਵਾਂ ਹਨ ਤਾਂ,

i) $a^p \times a^q = a^{p+q}$, e.g: $2^{\frac{2}{3}} \times 2^{\frac{1}{3}} = 2^{\frac{2}{3} + \frac{1}{3}} = 2^{\frac{2+1}{3}} = 2^{\frac{3}{3}} = 2$

ii) $(a^p)^q = a^{pq}$, e.g: $(3^{\frac{1}{2}})^{\frac{2}{3}} = 3^{\frac{1}{2} \times \frac{2}{3}} = 3^{\frac{1}{3}}$

iii) $\frac{a^p}{a^q} = a^{p-q}$, e.g: $\frac{7^{\frac{1}{3}}}{7^{\frac{1}{5}}} = 7^{\frac{1}{3} - \frac{1}{5}} = 7^{\frac{3-5}{15}} = 7^{\frac{-2}{15}}$

iv) $a^p \times b^p = (ab)^p$, e.g: $13^{\frac{1}{5}} \times 17^{\frac{1}{5}} = (13 \times 17)^{\frac{1}{5}} = 221^{\frac{1}{5}}$

ਕੁੱਝ ਸਵਾਲ:-

i) $64^{\frac{1}{2}} = (8^2)^{\frac{1}{2}} = 8^{2 \times \frac{1}{2}} = 8^1 = 8$

ii) $125^{\frac{-1}{3}} = (5^3)^{\frac{-1}{3}} = 5^{3 \times \frac{-1}{3}} = 5^{-1} = \frac{1}{5}$

iii) $(\frac{1}{3^3})^7 = \frac{1}{(3^3)^7} = \frac{1}{3^{21}}$

ਘਰ ਦਾ ਕੰਮ :- ਮੁੱਲ ਪਤਾ ਕਰੋ।

i) $32^{\frac{1}{5}}$ ii) $32^{\frac{2}{5}}$ iii) $2^{\frac{1}{3}} \times 2^{\frac{3}{4}}$ iv) $7^{\frac{1}{2}} \times 8^{\frac{1}{2}}$

PARHO PUNJAB, PARHAO PUNJAB-MATH TEAM(GURDASPUR)

Assignment - 6

Exercise - 1.6

Class - 9th

Laws of Exponents for real numbers:



Let $a > 0$ be a real number and p and q be rational numbers, then

i) $a^p \times a^q = a^{p+q}$, e. g: $2^{\frac{2}{3}} \times 2^{\frac{1}{3}} = 2^{\frac{2}{3}+\frac{1}{3}} = 2^{\frac{2+1}{3}} = 2^{\frac{3}{3}} = 2^1 = 2$

ii) $(a^p)^q = a^{pq}$, e. g: $(3^{\frac{1}{2}})^{\frac{2}{3}} = 3^{\frac{1}{2} \times \frac{2}{3}} = 3^{\frac{1}{3}}$

iii) $\frac{a^p}{a^q} = a^{p-q}$, e. g: $\frac{7^{\frac{1}{3}}}{7^{\frac{1}{5}}} = 7^{\frac{1}{3}-\frac{1}{5}} = 7^{\frac{3-5}{15}} = 7^{\frac{-2}{15}}$

iv) $a^p \times b^p = (ab)^p$, e. g: $13^{\frac{1}{5}} \times 17^{\frac{1}{5}} = (13 \times 17)^{\frac{1}{5}} = 221^{\frac{1}{5}}$



Some Problems :-

i) $64^{\frac{1}{2}} = (8^2)^{\frac{1}{2}} = 8^{2 \times \frac{1}{2}} = 8^1 = 8$

ii) $125^{\frac{-1}{3}} = (5^3)^{\frac{-1}{3}} = 5^{3 \times \frac{-1}{3}} = 5^{-1} = \frac{1}{5}$

iii) $(\frac{1}{3^3})^7 = \frac{1}{(3^3)^7} = \frac{1}{3^{21}}$



Home Work:-

i) $32^{\frac{1}{5}}$ ii) $32^{\frac{2}{5}}$ iii) $2^{\frac{1}{3}} \times 2^{\frac{3}{4}}$ iv) $7^{\frac{1}{2}} \times 8^{\frac{1}{2}}$