**Instruction**

1. Please read the chapter from your text book and the attached notes.
2. Then work out the exercises neatly in your notebooks henceforth.
3. Ensure neat and tidy work.
4. Do not write above the red line of the notebook pages.
5. Use notebook with 120 pages and write with blue ink.
6. Make a contents page first with columns under the heads as given below:

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<table>
<thead>
<tr>
<th>DATE</th>
<th>WORKSHEET NO.</th>
<th>CHAPTER NO. AND NAME</th>
<th>PAGE NO.</th>
<th>TEACHER'S SIGNATURE</th>
</tr>
</thead>
</table>
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Q1. Simplify and write the following in exponent form.

\[
\left( \frac{3}{10} \right)^5 \times \left( \frac{2}{15} \right)^5
\]

Solution.

\[
\left( \frac{3 \times 3 \times 3 \times 3}{10 \times 10 \times 10 \times 10} \right) \times \left( \frac{2 \times 2 \times 2 \times 2}{15 \times 15 \times 15 \times 15} \right)
\]

Or \( 10^5 = ( 2 \times 5 )^5 = 2^5 \times 5^5 \) \& \( 15^5 = ( 3 \times 5 )^5 = 3^5 \times 5^5 \)

[ using law- \((ab)^x = (a^x \times b^x)\) ]
\[ \therefore \quad \frac{3^5}{2^5 \times 5^5} \times \frac{2^5}{3^5 \times 5^5} \]

So, on cancelling \(3^5\) & \(2^5\) from Numerator and denominator we get,

\[ \frac{1}{5^5} \times \frac{1}{5^5} = \frac{1}{5^{10}} = \left(\frac{1}{5}\right)^{10} \quad \text{Answer.} \]

Q2. Simplify and write the following in exponent form.

\[ 3^0 \times 4^0 \times 5^0 \]

Solution. \( 3^0 \times 4^0 \times 5^0 = 1 \times 1 \times 1 = 1 \quad \text{Answer} \quad [ \text{using law } a^0 = 1 ] \)

Q3. Express each of the following rational number in the exponential form.

\[ \left( -\frac{125}{216} \right) \]

Solution. \( -\frac{125}{216} = \left( -\frac{5 \times 5 \times 5}{2 \times 2 \times 2 \times 3 \times 3 \times 3} \right) \) or \( -\frac{5^3}{2^3 \times 3^3} \)

\[ = \left( -\frac{5^3}{(2 \times 3)^3} \right) \) or \( -\frac{5^3}{6^3} \quad \text{Answer.} \]

Q4. Simplify the following.

\[ \frac{25 \times 5^2 \times t^8}{10^3 \times t^4} \]

Solution. \( \frac{25 \times 5^2 \times t^8}{10^3 \times t^4} = \frac{5^2 \times 5^2 \times t^8}{(2 \times 5)^3 \times t^4} = \frac{5^{(2+2)} \times t^8}{2^3 \times 5^3 \times t^4} \)

\[ = \frac{5^4 \times t^8}{2^3 \times 5^3 \times t^4} \) or \( \frac{5^{(4-3)} \times t^{(8-4)}}{2^3} \]

\[ = \frac{5^4 \times t^4}{2^3} \) or \( \frac{5t^4}{8} \quad \text{Answer.} \]

Questions for practice. (Exercise 4.2)

Q6. Sub-part (i, ii, iii, iv, v)

Q7. Sub-part (i & ii)

Q8. Sub-part (i, iii & iv)

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