| Product Property $x^{m} \cdot x^{n}=x^{m+n}$ | $\begin{aligned} & x^{2} \cdot x^{4} \\ & x \cdot x \cdot x \cdot x \cdot x \cdot x=x^{6} \end{aligned}$ |
| :---: | :---: |
| Quotient Pruperty $\frac{x^{m}}{x^{n}}=x^{m-n}$ | $\begin{aligned} & \frac{x^{6}}{x^{3}}=\frac{* \cdot x \cdot x \cdot x \cdot x \cdot x}{* \cdot * \cdot x}=x^{3} \\ & \frac{x^{3}}{x^{6}}=x^{-3} \end{aligned}$ |
| Negative Expments $\begin{aligned} x^{-m} & =\frac{1}{x^{m}} \\ \frac{1}{x^{-m}} & =x^{m} \end{aligned}$ | $\begin{aligned} 2 x^{-3} & =\frac{2}{x^{3}} \\ \frac{1}{x^{-7}} & =x^{7} \end{aligned}$ |
| Power of a Puwer $\left(x^{m}\right)^{n}=x^{m n}$ | $\left(x^{2}\right)^{3}=x^{2} \cdot x^{2} \cdot x^{2}=x^{6}$ |
| Power of a Prodnct $(x y)^{m}=x^{m} y^{m}$ | $\begin{aligned} & \left(x^{3} y^{4}\right)^{5}=x^{15} y^{20} \\ & \left(x^{3}\right)^{5}\left(y^{4}\right)^{5} \end{aligned}$ |
| Power of a Quotiont $\begin{aligned} & \left(\frac{x}{y}\right)^{m}=\frac{x^{m}}{y^{m}} \\ & \left(\frac{x}{y}\right)^{-m}=\left(\frac{y}{x}\right)^{m} \\ & \vec{y}=\frac{x^{-m}}{y^{-m}}= \end{aligned}$ | $\left(\frac{x^{3}}{y^{2}}\right)^{4}=\frac{x^{12}}{y^{8}}$ |
| Zero Power $x^{0}=1$ | $\begin{array}{r} 5^{0}=1 \\ 8^{0}=1 \\ (-12)^{0}=1 \\ 2 y^{2} \end{array}$ |

Stady tip: to simplity

- no powers of powers
- each base arpears exactly once
- all fractions in simplest furm
- no negative expments

$$
\begin{aligned}
& \text { exA. }\left(-3 x^{2} y^{4}\right)\left(4 x^{5} y^{7}\right)=-12 x^{7} y^{11} \\
& \\
& -3.4 x^{2} \cdot x^{5} y^{4} \cdot y^{7} \\
& \text { ex.B }\left(-2 x^{3} y^{4}\right)^{3}=-8 x^{9} y^{12} \\
& (-2)^{3}\left(x^{3}\right)^{3}\left(y^{4}\right)^{3} \\
& \text { ex.C } \frac{-15 m^{4} n^{3}}{-5 m^{2} n^{7}}=3 m^{2} n^{-4}=\frac{3 m^{2}}{n^{4}} \\
& \frac{-15}{-5} \frac{m^{4}}{m^{8}} \frac{n^{3}}{n^{7}} \\
& \text { ex.D }\left(\frac{6 x^{4} y^{5}}{2 x^{6} z^{2}}\right)^{3}=\frac{216 x^{12} y^{15}}{8 x^{18} z^{6}}=\frac{27 x^{-6} y^{15}}{z^{6}}=\frac{27 y^{15}}{x^{6} z^{6}} \\
&
\end{aligned}
$$

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$$
\begin{aligned}
& \text { ex.E } \frac{\left(2 x^{2} y^{3}\right)^{2}\left(4 x^{-4} y\right)}{6 x^{2} y^{3}}=\frac{4 x^{4} y^{6}\left(4 x^{-4} y\right)}{6 x^{2} y^{3}} \\
& =\frac{16 x^{0} y^{7}}{6 x^{2} y^{3}}=\frac{8}{3} x^{-2} y^{4}=\frac{8 y^{4}}{3 x^{2}} \\
& \text { ex.F }\left(\frac{45 x^{5} y^{2} z^{-7}}{5 x^{-6} y z^{2}}\right)^{0}= \\
& \frac{45 x^{5} y^{2} z^{-7}}{5 x^{-6} y z^{2}}=9 x^{11} y z^{-9} \\
& =\frac{9 x^{11} y}{z^{9}} \\
& \frac{8^{9875}}{8^{9873}}=8^{2}=64
\end{aligned}
$$

## p. 316-318 <br> 11-13, 16-17, 19-20, 22- <br> $23,26,31-32,36,40$, 43, 47-48

